The case for the development of an online intervention designed to support midwives in work-related psychological distress

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By

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Certificate of Ethical Approval

Applicant:

Sally Pezaro

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A Delphi Study to achieve consensus in the Development of an Online Intervention Designed to Effectively Support Midwives in Work-Related Psychological Distress.

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

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Abstract:

Midwives experience both occupational and organisational episodes of work-related psychological distress. As the wellbeing of health professionals is linked with the safety and quality of care, these episodes of distress should be met with adequate support. Midwives can be reluctant to speak openly about episodes of work-related distress. Additionally, they may not be able, or prefer not to access face-to-face support. As such, an online intervention may be one option that midwives turn to when seeking support, as it can provide confidential and flexible access to support.

This research makes a case for the development of an online intervention, designed to effectively support midwives in work-related psychological distress. Firstly, a narrative literature review integrates contemporary research to build an overview of the nature, prevalence, and origin, of work-related psychological distress in midwifery populations. A critical literature review then explores some of the ethical considerations in relation to providing midwives with anonymous and confidential online support. This review concludes that the provision of anonymity and confidentiality online would ensure the greatest benefit overall to the greatest number of people using and working within maternity services.

A systematic mixed-methods literature review then concludes that there are currently very few targeted interventions designed to support midwives in work-related distress, none of which are currently delivered online. Moreover, this review identifies insufficient high-quality research to comprehensively understand which particular interventions or techniques could deliver effective support to midwives in work-related psychological distress. Lastly, a multi-stakeholder Delphi study is presented to establish consensus in relation to the content development, design and delivery of an online intervention to support midwives and/or student midwives in work-related psychological distress. In this case, an expert panel prioritised confidentiality and anonymity, along with 24-hour mobile access, effective moderation, an online discussion forum, and additional legal, educational, and therapeutic components. Consensus also supported the inclusion of a simple user assessment to identify people at risk of either causing harm to others or experiencing harm themselves, in order to direct them to appropriate support.

The impact of any future intervention of this type will be optimised by utilising the findings from this Delphi study throughout the intervention development process. Furthermore, as the ethical, practical and evidence based arguments for the development of an online intervention designed to support midwives in work-related psychological distress have now been formed, it

will be important to build and rigorously test this intervention in response to the identified gaps in research. This thesis demonstrates that there is a case for the development of an online intervention designed to support midwives in work-related psychological distress. Future research will require feasibility studies, pilot studies and adequately powered randomised controlled trials in order to secure the evidence base for any new online support for this professional population.

Keywords:

Midwifery; Psychological Distress; Burnout, Professional; Job satisfaction; Online Interventions.

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Declarations

I declare that the content of this thesis is entirely my own work and has not been submitted as part of any degree at another university.

Supervisory Team

Dr. Wendy Clyne, Professor Andrew Turner and Dr. Emily A. Fulton. Academic advisors to this research include Dr. Elizabeth Bailey and Dr. Clare Gerada.

Ethical Approval

Ethical approval has been awarded for this research by CU ETHICS at Coventry University.

Table of Contents

List of figures and tables

Abbreviations

CI: Confidence Interval

CONSORT-EHEALTH: Consolidated Standards of Reporting Trials of Electronic and Mobile HEalth Applications and onLine TeleHealth

COR: Conservation of Resources

CBT: Cognitive Behavioural Therapy

DASS: Depression Anxiety and Stress Scale

DCS: Demand Control Support

ERI: Effort Reward Imbalance

EMDR: Eye Movement Desensitization and Reprocessing

GRADE: Grading of Recommendations, Assessment, Development and Evaluations

GHQ-12: General Health Questionnaire

GMC: General Medical Council

HSE: Health and Safety Executive

IES: Impact of Event Scale

ICM: International Confederation of Midwives

JDC: Job Demand Control

MRC: Medical research council

NMC: Nursing and Midwifery Council

NHS: National Health Service

PTSD: Post Traumatic Stress Disorder

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-analyses

PANAS: Positive and Negative Affect Schedule

ProQol: Professional Quality of Life scale

RCM: Royal College of Midwives

RCT: Randomised Controlled Trial

SOC: Sense of Coherence – Orientation to Life scale

SORT: Strength of Recommendation Taxonomy

TOP: Termination of pregnancy

TIDieR: Template for Intervention Description and Replication (TIDieR)

UK: United Kingdom

Chapter One: Introduction, background and context

This thesis sets out a case for the development of an online intervention designed to support midwives in work-related psychological distress. In order to do this, it includes a critical literature review, a systematic mixed-methods review and a Delphi Study. These studies explore the ethical considerations in relation to providing online support to midwives, the outcomes and experiences associated with the use of support interventions to support midwives, and the preferences of midwives and other stakeholders in relation to the content development, design and delivery of the proposed intervention online. It is important to explore the development of support interventions for professional health care groups such as this, as the lack of attention to the support and wellbeing of the health professional has been identified as a missing response in healthcare management (Austin, Smythe and Jull 2014, Fenwick et al. 2012, Mander 2001, Sawbridge and Hewison 2013, Seys et al. 2013a, Ullström et al. 2014).

Previous reviews of interventions to support the psychological wellbeing of health care professionals at work have yet to identify high quality studies of interventions to support midwives (Guillaumie, Boiral and Champagne 2016, Murray, Murray and Donnelly 2016, Regehr et al. 2014, Romppanen and Häggman-Laitila 2016, Ruotsalainen et al. 2015). It is therefore unclear whether existing interventions may or may not be effective in supporting this professional group. This primary chapter explores the relevant theories, concepts, contexts and rationales associated with the development of an online intervention to support midwives and student midwives in work-related psychological distress. This chapter also provides an introduction and background to this research, and leads towards the research questions to be answered in this thesis. This chapter has been published, in part, elsewhere (Pezaro et al. 2015).

Why focus on midwives and student midwives?

For the purpose of this research, the midwife is defined in line with the International Confederation of Midwives (ICM) statement that “a midwife is a person who has successfully completed a midwifery education programme that is duly recognised in the country where it is located and that is based on the ICM Essential Competencies

for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competency in the practice of midwifery" (ICM International Confederation of Midwives 2011).

This thesis also includes student midwives within the term midwife. Student midwives are included due to the fact that they perform midwifery work, and experience similar episodes of work-related psychological distress (Coldridge and Davies 2017, Davies and Coldridge 2015a). Although student midwives practise within a different role, and may experience different manifestations of work-related psychological distress, they can also be considered to form a part of the midwifery workforce. Throughout this thesis, student midwives are included when the term 'midwife' or 'midwives' is used, unless stated otherwise.

Some evidence demonstrates that midwifery plays a 'vital' role in rapid and sustained reductions in maternal and newborn mortality (World Health Organization 2016). Further to this, a detailed analysis reports that reducing midwife stress is 'key' to improving birth safety (RCOG 2017). In their professional role, midwives can provide the majority (87%) of essential maternal and newborn care (UNFPA 2014). However, in the largest global survey of 2470 midwives from Europe, the Americas, Africa, Asia and the Pacific (93 countries), only between 41% and 48% of midwives said that they felt fulfilled, happy and energetic at work (World Health Organization 2016). Additionally, within this survey, 15% felt unsupported in the workplace, 45% felt exhausted, and around 6%-10% felt traumatised, lonely, scared or angry in the workplace (World Health Organization 2016).

Although midwives work within a multidisciplinary team, midwifery is different from nursing, with different historical and legislative beginnings (Donnison 1977, Towler and Bramall 1986). Midwives care for childbearing women and newborn babies, who are not commonly considered to be 'unwell' or in need of medical help, if pregnancy and

childbearing are considered to be normal physiological processes. This is in contrast to nurses and physicians, who generally receive 'patients' rather than 'women', whom they anticipate may be unwell from the outset. Some midwives describe high dependency (high risk) care as being 'nursing work' which falls outside of their scope of practice (Eadie and Sheridan 2017). If midwives are generally more familiar with supporting normal physiological childbearing, rather than nursing or medical intervention, then they may also have a different experience of medical, traumatic or clinically critical events. Consequently, this professional group may require bespoke workplace support.

A stress response that can occur as a result of knowing, or helping, a traumatised or suffering person known as secondary traumatic stress is reported to be at high to severe levels in midwifery populations (Beck, LoGiudice and Gable 2015). In Poland, burnout, emotional exhaustion and depersonalisation levels have also been found to be higher in midwives than in general nurses and hospice nurse populations, yet the latter two populations can sometimes receive a higher level of support in the workplace (Kalicińska, Chylińska and Wilczek-Różyczka 2012).

One situational analysis has identified how doctors, dentists, nurses, physiotherapists, surgeons, pharmacists, dieticians, psychiatrists and optometrists in the United Kingdom (UK) have already been provided with targeted support (Strobl et al. 2014). Such support is delivered by a variety of trade unions, societies and associations rather than by employers, and includes the provision of psychotherapy, counselling, education, legal and financial advice, general emotional and signposting support. Here, support is both peer and non-peer based, and can be accessed via telephone, the internet, published guidance or via face-to face support. This same situational analysis identifies that there is a paucity of structured and evidence-based support designed to address the psychological well-being of midwives and student midwives specifically (Strobl et al. 2014). This presents a unique opportunity to explore new research in this area.

In relation to gender, female midwives can demonstrate a different understanding of risk and safety in relation to their own childbearing experiences due to their existing

professional knowledge in this area (Church 2014). For instance, some midwives who have personal experience of pregnancy loss may display a greater understanding of the impact of pregnancy loss when supporting others in a professional capacity (Bewley, Hunter and Deery 2008).

Yet this expert knowledge can also result in increased anxieties during a midwife's own transition into motherhood. For example, due to personal expectations, knowledge of the benefits of breastfeeding and the social meaning assigned to it, some midwives who encounter difficulties breastfeeding can find this experience emotionally difficult to reconcile with (Battersby, Hunter and Deery 2009). Additionally, whilst midwives of childbearing age can find their existing professional knowledge and position useful when trying to assert agency whilst bearing their own children, some caregivers can dismiss midwives' assessment of their own personal situations and this can generate further anxieties for midwives (Church 2014). Overall, whilst a midwife's professional knowledge may be used to gain both personal and professional benefits, this knowledge may also result in negative experiences such as increased anxiety. While this evidence suggests how midwives may differ from other healthcare professions, the next section of this chapter summarises the role and status of midwives around the world in relation to the unique position of the midwife in order to give a situational context to this work.

The role and status of midwives around the world: A situational context

The ICM has broadly defined the role of the midwife to be one in which "The midwife is recognised as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour and the postpartum period, to conduct births on the midwife's own responsibility and to provide care for the newborn and the infant" (ICM International Confederation of Midwives 2011).

Around the world, the midwifery workforce has been grouped into eight broad categories, made up of 381 different cadres, specified by a variety of countries. These groups are namely midwives, nurse-midwives, nurses, auxiliaries (midwives and nurses), associate clinicians, physician generalists and obstetricians/gynaecologists

(UNFPA 2014). However, there are also non-professional groups, such as traditional birth attendants and community health workers, who also deliver midwifery care in the community (mainly supervised). These groups can vary in their distribution across many rural and urban settings around the world. There is also great diversity as to which group may be responsible for carrying out which tasks within the scope of midwifery practice in accordance with the International Standard Classification of Occupations (World Health Organization 2010). As such, it is challenging to define the scope and role and status of the midwife in all contexts and countries. This challenge is echoed within the findings of a recent global consultation, where many midwives reported that it was not always clear what 'midwifery' was, and that they were not always given a job description or documentation on the competencies that are expected within the role of a midwife (World Health Organization 2016).

In any case, some issues in the midwifery workforce are considered to be a barrier to successfully carrying out the midwifery role in full (World Health Organization 2016). In these cases, midwives report that they experience professional barriers such as a lack of status and "subordination by the medical profession", and social barriers such as gender discrimination, disrespect, a weak professional identity and weak regulatory support. Additionally, midwifery faces economic barriers such as inadequate resourcing and poor rates of pay. These social, professional and economic barriers are interlinked and interdependent, and as these three areas overburden midwifery staff, their experience of distress can accumulate, and result in burnout (PGCEA 2011, World Health Organization 2016).

Issues relating to power, agency and the status of the midwifery role are universal, regardless of whether midwives care for women and newborns in high, middle or low-income countries (World Health Organization 2016). Yet overall, the roles and responsibilities of the midwife appear fragmented and undefined in parts of the world, and midwives are facing professional, economic and social barriers which may hinder their ability to carry out the role of the midwife to the best of their ability. Ultimately, should these barriers affect the midwifery workforce, then burnout and distress may also become apparent. Whilst in the largest global survey of midwives there are initiatives listed to help overcome these social, professional and economic barriers in

midwifery practice, there is no mention of working towards adequate support provision for midwives and student midwives practising under these conditions (World Health Organization 2016). As such, it will be important to understand the nature and origins of work-related psychological distress in relation to this population.

Exploring the literature in relation to the nature of work-related psychological distress in midwifery populations

In order to further understand the nature and origins of work-related psychological distress in midwifery populations, the wider literature was explored. This was also done in order to identify any further gaps in research, and to further develop and refine the most appropriate research questions to be answered within this thesis. The research question associated with this exploration of the literature is:

What are the nature and origins of work-related psychological distress in midwifery populations?

Search Strategy

As this chapter aims to provide a conceptual and theoretical understanding of midwives in work-related psychological distress, a wide range of literature in relation to this topic was sought. As such, this search strategy was designed to capture literature in relation to the nature of work-related psychological distress and any other themes surrounding this subject matter.

AMED - The Allied and Complementary Medicine Database, CINAHL with Full Text, MEDLINE and PsycINFO were searched simultaneously, using a combination of terms used in tandem with the defining cohort of 'midwives or midwife' within the TI (Title) search field. Searches included 'midwives or midwife' and 'psychological distress', and 'bullying in nursing workplace 'and 'bullying in the workplace' and 'bullying in nursing' and 'traumatic stress', and 'vicarious trauma', and 'compassion fatigue and burnout', and 'secondary trauma', and 'depression and anxiety', and 'PTSD or post-traumatic stress disorder', and 'workplace stress' and 'resilience' and 'Emotion Work' and 'secondary traumatic stress'. This resulted in 14 separate searches, which generated 264 results. 98 duplicates were then removed, leaving 166 papers to review.

Papers had to be written in the English language and focus upon work-related psychological distress in relation to the aetiologies, experiences, symptomology and epidemiology of midwives in psychological distress, rather than in relation to the women they cared for or any other professional group. Papers were limited to those published after the year 2000 in order to generate a more contemporary overview of current understanding. Papers selected for inclusion were limited to cohort studies, systematic reviews, meta-analyses, and randomised controlled trials (RCT's) in order to unite best evidence (Sackett et al. 2000).

76 papers were excluded as they related to issues affecting childbearing women rather than midwifery populations. Subsequently, 25 articles were removed, as they were editorial or discursive in nature. A further 36 articles were excluded, as they did not relate to the subject of midwives in work-related psychological distress. 12 papers related to workplace interventions, they were excluded from this review because this chapter is concerned with the nature of work-related stress in midwifery populations rather than the provision of support. One study was rejected as it related to other professionals providing care to labouring women, and two studies were added through a snowballing of the literature, whereby reference lists were assessed for other papers of relevance (Choong et al. 2014). Finally, 30 papers were selected for inclusion.

Limitations

Professionals who practise as midwives are frequently referred to as obstetric nurses or nurse-midwives, and may be amalgamated within nursing cohorts, or referred to as general healthcare staff. Therefore, some studies may have avoided retrieval by omitting to identify their cohorts as midwives.

Additionally, although this review sought to retrieve high quality peer reviewed studies via its inclusion criteria's, the quality of each individual paper has not been rigorously assessed. This was because this review sought to examine a wide range of evidence in relation to this topic in order to construct an overview of understanding, rather than assess these studies for their scientific rigor.

Results

The studies selected for review took place in the following countries:

- Australia (Farrell and Shafiei 2012, Jordan et al. 2013, Mollart, Newing and Foureur 2009, Schluter, Turner and Benefer 2012)
- Croatia (Knezevic et al. 2011)
- France (Garel et al. 2007)
- Ireland (Begley 2002)
- Israel (Halperin et al. 2011)
- Italy (Mauri et al. 2015)
- Japan (Mizuno et al. 2013, Sato and Adachi 2013)
- Nigeria (Afolayan and Dairo 2009)
- New Zealand (Schluter, Turner and Benefer 2012)
- Poland (Kalicińska, Chylińska and Wilczek-Różyczka 2012)
- The United states of America (Beck, LoGiudice and Gable 2015)
- The United kingdom (Davies and Coldridge 2015a, Gillen et al. 2009, Hunter 2004, Hunter 2005, Hunter and Warren 2014, Rice and Warland 2013, Sheen, Spiby and Slade 2015)
- Turkey (Oncel, Ozer and Efe 2007)
- Uganda (Muliira and Bezuidenhout 2015, Muliira, Sendikadiwa and Lwasampijja 2015)

Some study designs included convergent, parallel mixed-methods, critical literature reviews (Hunter 2001, Leinweber and Rowe 2010, Sheen, Slade and Spiby 2014, Wallbank and Robertson 2008), and an exploratory qualitative descriptive study (Hunter and Warren 2014). Data was collected within other studies via individual and group interviews (Halperin et al. 2011, Hunter 2004, Hunter 2005, Mauri et al. 2015, Mollart, Newing and Foureur 2009, Rice and Warland 2013), narratives (Begley 2002), diary-keeping (Begley 2002) and questionnaires (Afolayan and Dairo 2009, Beck, LoGiudice and Gable 2015, Begley 2002, Bennett and Wells 2010, Farrell and Shafiei 2012, Garel et al. 2007, Gillen et al. 2009, Hutchinson 2014, Jordan et al. 2013, Kalicińska, Chylińska and Wilczek-Różyczka 2012, Knezevic et al. 2011, Mizuno et al.

2013, Oncel, Ozer and Efe 2007, Sato and Adachi 2013, Schluter, Turner and Benefer 2012, Sheen, Spiby and Slade 2015).

Findings

The literature retrieved describes how distressed midwives may carry on working in distress, and use this persistence as a maladaptive coping strategy. This persistence in the workplace may become dysfunctional, and may not allow midwives to recognise psychological ill health in themselves. Long hours, the introduction of new technologies in healthcare, job security, 'emotion work', trauma exposure, dysfunctional working cultures and a lack of career progression have become strong predictors of work-related psychological distress in midwives (Afolayan and Dairo 2009, Farrell and Shafiei 2012, Hunter 2001, Sheen, Slade and Spiby 2014). Additionally, the overarching philosophy that midwives should be able to cope with anything may hinder the promotion of healthy, and/or help seeking behaviours. However, the wider findings in this literature review point towards both occupational and organisational sources of work-related psychological distress for a variety of midwifery populations.

Occupational Sources of Distress

The high degree of empathic identification which characterises the midwife–woman relationship may place midwives at risk of experiencing secondary traumatic stress (the potential emotional impact of caring for others in distress) when caring for women experiencing traumatic birth (Leinweber and Rowe 2010, Sheen, Slade and Spiby 2014). Secondary traumatic stress in midwives is reported at high to severe levels (Beck, LoGiudice and Gable 2015). These high levels of distress may mean that a midwife's ability to professionally engage with childbearing women and their families may be compromised. This may also make them more likely to leave the profession (Wakelin and Skinner 2007).

Within the labour and delivery rooms of the United States, midwives most frequently cited neonatal demise/death, shoulder dystocia, and infant resuscitation as being the incidents in which their secondary traumatic stress had originated (Beck, LoGiudice and Gable 2015). This becomes significant as specific interventions of support are

developed in response to the most salient adverse events. Client-related burnout is well established to be related to this type of work with clients, patients, students or other kind of recipients (Hildingsson, Westlund and Wiklund 2013). One other study cited that 80–90% of 556 Japanese midwives have been highly stressed by qualitative job overload, with one out of every three to five displaying a psychological disorder such as depression and/or anxiety (Sato and Adachi 2013). As such, the emotional and psychological impact of caring for childbearing women, their families and other colleagues may require further attention in any new interventions designed to support midwives in this area.

Midwives report having difficulties in functioning professionally during the unexpected reality of a rare and stressful clinical situation (Halperin et al. 2011). This may lead to distressing feelings of guilt, rumination and diminished professional confidence. In sum, 33% of 421 UK midwives surveyed have been found to develop symptoms of clinical posttraumatic stress disorder following a traumatic event (Sheen, Spiby and Slade 2015). These symptoms included feelings of fear, helplessness and 'horror' (Vermetten 2015). Following clinical investigations and traumatic births, midwives in the United States expressed a need for a safe forum to share their experiences with colleagues, as they had no place to talk and 'unburden their souls' (Beck, LoGiudice and Gable 2015). Some of these midwives had lost their belief in birth as a 'normal' and physiological process, developed Post-Traumatic Stress Disorder (PTSD), and many left the midwifery profession. The development of PTSD symptoms is associated with burnout, and as such, the exposure to trauma may impact significantly upon the wellbeing of the workforce (Sheen, Spiby and Slade 2015). This becomes significant as the world tries to recruit a high-quality midwifery workforce in the face of a global shortage of midwives (Oulton 2006).

Complex maternity care

Upon providing ethically complex and emotive clinical tasks such as Termination of Pregnancy (TOP), many midwives report significant emotional distress (Garel et al. 2007, Mauri et al. 2015, Mizuno 2011). How the midwife manages emotional midwifery work is crucial in determining the quality of patient experiences, as the stressors involved in conducting a TOP are associated with the development of

compassion fatigue (Hunter 2001, Mizuno 2011). Equally, the psychological distress experienced by midwives caring for families experiencing stillbirth, neonatal loss and miscarriages remains relatively high, as midwives continue to provide emotionally intense and deeply empathetic care (Wallbank and Robertson 2008). This is significant as the demanding task of providing empathy may often conflict with the midwives need to protect themselves psychologically, and yet empathy and compassionate care have been identified as fundamental tenets of the profession (Francis 2013, The Nursing and Midwifery Council (NMC) 2015).

Midwives who provide antenatal care to families with complex social needs such as domestic violence or drug and alcohol use have reported cumulative feelings of frustration, inadequacy and vicarious trauma over time (Mollart, Newing and Foureur 2009). This emotional and stressful work, which often requires long working hours has led to some of these midwives utilising unhealthy coping strategies such as harmful daily drinking (Schluter, Turner and Benefer 2012). This is significant as we begin to understand the consequences of cumulative exposure to complex and emotive maternity work.

Midwives in developing countries

Midwives working within resource poor, developing countries experience traumatic incidents and death more frequently (Oestergaard et al. 2011, World Health Organization, UNICEF and United Nations Fund for Population Activities 2012). In a survey of 238 midwives working in two rural districts of Uganda, many have displayed moderate to high death anxiety (93%), mild to moderate death obsession (71%) and mild death depression (53%) (Muliira and Bezuidenhout 2015). Furthermore, 74.6 % of 224 midwives working again, in rural areas of Uganda, developed moderate or high death anxiety following prolonged exposure to maternal death (Muliira, Sendikadiwa and Lwasampijja 2015). This becomes significant as the midwifery profession looks to maintain a healthy workforce in these areas towards achieving goals which call for a reduction in the global maternal and neonatal mortality rates (Alkema et al. 2016, Banozic, Skevington and Todorova 2015).

Occupational sources of distress for student midwives

Student midwives also experience work-related psychological distress. When they narrate their most distressing placement related event, their beliefs about the uncontrollability of thoughts and danger, beliefs about the need to control thoughts, and rumination over that traumatic incident were all significantly associated with posttraumatic stress symptoms (Bennett and Wells 2010). Student midwives have also reported feeling unable to speak out and ask for help within hierarchical midwifery workplaces (Begley 2002). This becomes significant as a new generation of midwives will also need to effectively manage their mental health whilst carrying out demanding and emotional midwifery work.

Organisational Sources of Distress

Midwifery cultures have historically been seen as hierarchical, and it has been suggested that this may have led to the subordination of midwives, bullying, ineffective team working and a reduction in professional autonomy (Begley 2002). It has also been proposed that midwives can form elite 'clubs' in the workplace and exclude those of lesser rank (Begley 2002). However, it is unclear whether this situation has remained the same over the last 15 years. Additionally, as it is the obstetrician takes the most senior position within the hierarchical structure, it has also been suggested that this could restrict the midwife's ability to innovate and develop optimal levels of confidence in his or her own professional role (Begley 2002). This working culture may not allow midwives, or the midwifery profession to thrive, as midwives worry about workplace aggression and bullying (Farrell and Shafiei 2012). Inhibited professional progression, bullying and subordination have been identified as key predictors of psychological distress (Afolayan and Dairo 2009, Schluter et al. 2011, Skinner et al. 2011). This provides some understanding of the predictors of stress, which may in turn be used to support midwives in preventing work-related psychological distress more effectively.

When a traumatic birth occurs, midwives can find it difficult to work between the medical model of care and the midwifery model of care (Rice and Warland 2013). In a qualitative thematic content analysis of open text responses, some of the 246-certified nurse-midwife respondents felt 'betrayed' and 'abandoned' by obstetricians in what

was described as an ‘unsupportive’, ‘toxic’, ‘hostile’ and ‘unsafe’ working environment (Beck, LoGiudice and Gable 2015). As such, new understandings in relation to the nature of these interprofessional conflicts and disruptive behaviours which create tensions in what has been described as the ‘domination’ of the medical model of childbirth over midwifery practice could be usefully explored through future research (Johanson, Newburn and Macfarlane 2002, Reiger 2008, Veltman 2007).

In this regard, other midwives report feeling ‘stuck’ between their desire to work within the midwifery model and the realities of practising within a medical model of childbirth, whilst being ‘bullied, undermined and intimidated’ because of the power currently held by the medical model of childbirth (Hunter 2005, Rice and Warland 2013). Such interpersonal conflict has been positively correlated with hostility, depression, anxiety and fatigue in midwifery professionals (Hastie and Fahy 2011, Sato and Adachi 2013). As such, the professional identity, role and scope of midwifery practice may need further authority within maternity services, so that midwives can feel empowered to practice as an equal specialist in maternity care. Those who express high levels of job satisfaction, and those who perceive that others have a positive opinion about the midwifery profession are observed to have lower levels of work-related stress and burnout (Oncel, Ozer and Efe 2007). This may indicate that raising the professional profile of midwifery and placing more value upon midwives in practice could play a part in strategies designed to remedy psychological distress in midwifery populations.

‘Emotion work’ can be defined as the emotional regulation required in the display of organisationally desired emotions (Zapf et al. 1999). Challenging models of midwifery care, high expectations, working intimately with women in pain, and managing the emotions of other’s can all place emotional burden upon the midwife (Hunter 2001). Negotiating inter-collegial conflict in midwifery is a major source of emotion work, which has been identified as likely to exacerbate workforce attrition and psychological distress (Hunter 2005). This provides some understanding of the conflicts between ideals and practice, which can result in frustration, psychological distress and burnout (Hunter 2005).

In one study of 58 Australian midwives, almost 30% experienced moderate to high levels of work-related burnout (Jordan et al. 2013). Midwives can experience burnout as a result of dysfunctional working cultures, work stress, and poor job satisfaction (Oncel, Ozer and Efe 2007). In a sample of 60 Croatian midwives, over three-quarters (76.7%) reported that their job is stressful (Knezevic et al. 2011). This work-related stress was reportedly due to insufficient work resources, insufficient number of co-workers, poor organisation at work, poor communication with superiors and a high volume of emotional work. This suggests that organisational sources of work-related stress may also require attention, as while midwives may be supported individually, they may still face a continuation of stressors originating from the 'organisation'.

Organisational sources of distress for student midwives

The culture that student midwives observe is sometimes described as 'spiteful and cruel', where midwives are seen to behave 'coldly' like 'robots' who are 'emotionally shut down' (Davies and Coldridge 2015a). Within this qualitative descriptive study, one student midwife stated that "It's [midwifery is] supposed to be a caring profession but a lot of people I come across are the least caring people you could meet". Student midwives can also observe a lack of care towards themselves and other midwives in a culture permissive of bullying (Gillen et al. 2009). Workplace aggression and bullying from both staff and patients has been reported as being a frequent occurrence within the maternity workplace, with approximately half of staff reporting workplace aggression in the past month, 36% reporting violence in the workplace from patients or visitors and 32% reporting bullying by colleagues (Hutchinson 2014). Such disruptive working cultures in maternity services have been suggested to threaten patient safety (Veltman 2007).

Student midwives may also feel despondent upon the realisation that childbearing women do not get the care that they expect due to organisational pressures and excessive workloads (Davies and Coldridge 2015a). During semi structured interviews, some midwifery students who identified with these feelings of stress talked about excessive smoking, drinking or eating as ways in which they manage their stress (Davies and Coldridge 2015a). This introduction to the midwifery profession may not be conducive to a positive introductory experience, and may have serious implications

for future retention and recruitment strategies, as new students in training may assume some of the negative perspectives and behaviours communicated via their qualified mentors (Begley 2002). Additionally, the emotional demands of training to become a midwife accompanied by a lack of support have also been cited as being partly responsible for why some student midwives do not transition into qualified midwifery practice (Hughes 2013).

In summary, these findings illustrate a global and contemporary picture, where both midwives and student midwives experience work-related psychological distress and yet at times, carry on working regardless. Some are frustrated when they cannot practice to the best of their ability due to organisational inadequacies and obstructive working cultures. A variety of organisational pressures and features of emotional work have been identified as predictors of psychological distress in midwifery professionals. In addition to the clinically significant impacts of direct trauma exposure, inter-professional conflicts and organisational cultures are highlighted as threats to the midwife's psychological wellbeing.

Midwives working within developing countries, and those caring for women with complex social needs may present with specific symptomologies which relate to their particular area of midwifery practice. In any case, midwives in work-related psychological distress often feel that sources of support are inadequate, and would like access to a safe space in order to unburden their distress (Beck, LoGiudice and Gable 2015). Midwifery is sometimes seen as a pleasurable and privileged job by society and by midwives themselves (Knapp 2015). Yet the needs of those in psychological distress may not have been understood, prioritised or comprehensively acknowledged.

Some midwives have been unsatisfied with the support programmes and interventions currently on offer (Hutchinson 2014). This presents future research with new opportunities to develop effective, evidence based interventions designed to support midwives in work-related psychological distress. Midwives can seek out their own coping strategies, develop self-awareness, reflect, vent, positively re-frame events, cultivate a professional identity and employ self-distraction techniques in order to increase their own resilience towards workplace adversity (Muliira and Bezuidenhout

2015, Warren and Hunter 2014). However, it is as yet unclear which strategies may be most effective in supporting midwifery populations.

Exposure to trauma and psychologically distressing events could adversely affect the wellbeing of midwives and the care provided to women (Sheen, Slade and Spiby 2014). Future research has the opportunity to explore and develop evidence-based solutions to support midwives in work-related psychological distress. The provision of effective support could be significant for midwives, and student midwives both personally and professionally. Service users may also benefit from the provision of effective support for midwives, as the quality and safety of maternity services may also be enhanced (Downe, Finlayson and Fleming 2010, Haigh 2013, Illing et al. 2013, King, Laros and Parer 2012, Longo 2010, The Royal College of Physicians 2015, Veltman 2007).

The retrieved literature has shown how midwives working in resource poor areas, where they are exposed to death more frequently experience anxieties specifically linked to death in practice (Muliira and Bezuidenhout 2015, Muliira, Sendikadiwa and Lwasampijja 2015). This correlates with other research, which demonstrates that although midwives and student midwives' experiences and symptomologies remain broadly similar, midwives practising in African, Arabic- and Spanish-speaking countries appear to come across the psychological barriers to providing high quality maternity care more frequently (World Health Organization 2016). As such, it will be important for new support interventions to be able to reach these midwifery populations, some in geographically remote locations.

As this review of the literature has demonstrated that midwives from around the world experience work-related psychological distress, this thesis will explore the provision of support for both midwives and student midwives around the world. In exploring the literature, it is clear that the causes of work-related psychological distress in midwifery populations are both occupational and organisational. Whilst there are initiatives to help overcome the barriers to midwives providing high quality maternity care, adequate support provision for midwives is lacking (World Health Organization 2016). Other literature advocates that midwives are a distinct, and non-

medical profession, who are also in need of psychological support (Eadie and Sheridan 2017, World Health Organization 2016).

However, prior to exploring which components may be most suited to which particular type of intervention designed to support midwives in work-related psychological distress, it will be important to describe the concepts and definitions which relate to work-related psychological distress, work-related stress and the stressors which relate to their presence.

Definitions of stress; stressors and work-related psychological distress

Stress can be defined as a feature of the external environment that acts on an individual (a stressor), the individual's responses to environmental demands, threats, and challenges, or the interaction between the two (Ganster and Perrewé 2011). Work-related stress can be described as the process by which workplace psychological experiences and demands (stressors) produce both short-term and long-term changes in mental and physical health (Ganster and Rosen 2013). Such work-related stress can manifest physiologically, psychologically, behaviourally and socially, with detrimental consequences to both the individual and the organisation (Cox and Rial-Gonzalez 2002). The stress state can be defined as an on-going process that involves the person interacting with their environment, making appraisals of that interaction and attempting to cope with, and sometimes failing to cope with, any problems that arise (Cox, Griffiths and Rial-González 2000).

The concept of psychological distress is broadly defined as a general state of maladaptive psychological functioning, which occurs in response to prolonged or acute exposure to stressful occurrences (Abeloff et al. 2000, Ryrie and Norman 2004). Psychological distress has five defining attributes: (1) perceived inability to cope effectively, (2) change in emotional status, (3) discomfort, (4) communication of discomfort, and (5) harm (Ridner 2004).

More specifically, psychological distress is defined as a unique, discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person (Ridner 2004). Therefore, in line with this description, work-related psychological distress will

be defined in this thesis as a unique, discomforting, emotional state experienced by an individual in response to a specific work-related stressor or demand that results in harm, either temporary or permanent, to the person.

Types of Psychological Distress

The types of psychological distress that this thesis will explore in a midwifery context are namely emotional exhaustion, stress, secondary trauma, PTSD, depression and anxiety, burnout and compassion fatigue. In doing so, it is important to consider how these types of psychological distress and their symptomologies may overlap and interact with one another. The use of terms work-related stress and distress has evolved over time as these terms have been closely interlinked and used interchangeably (Bourbonnais, Comeau and Vézina 1999, Thorsteinsson, Brown and Richards 2014, Vermeulen and Mustard 2000).

Emotional exhaustion, burnout and compassion fatigue have all been used synonymously in workforce research (Ball et al. 2012). It has also been argued that workplace burnout is a type of depression, as there is a large overlap between burnout, depression and anxiety symptoms in the workplace (Atallah et al. 2016, Bianchi, Schonfeld and Laurent 2015, Schonfeld and Bianchi 2016). Other workforce research has linked burnout in midwives and conditions such as traumatic stress (Sheen, Spiby and Slade 2015, Wallbank and Robertson 2013) as well as stress symptoms (Skinner et al. 2007), and both positive and negative mental states (Wallbank and Robertson 2013). It is also important to recognise that midwives may experience an overlap of these in both their personal and professional lives.

Stress has been described as a physical, mental or emotional response to a change (Seyle 1983). In the short term, such stress can instigate a useful and rapid response to challenges. However, once stress exhaustion occurs, the stress response may lead to negative physical effects and psychological problems such as anxiety, depression and addiction (Cohen, Janicki-Deverts and Miller 2007, Sinha 2008). Stress is associated with symptoms of burnout, cognitive problems, depression and anxiety (Glise, Ahlborg and Jonsdottir 2012). The environmental events that trigger the stress process are commonly referred to as stressors, while an individual's responses to such

stressors are generally defined as strains (Griffin and Clarke 2011). Whilst a small amount of stress in the short term can be useful, the daily wear and tear of continuously adapting to stressors in the short-term can lead to long-term damage to multiple physiological processes (McEwen 1998). Similarly, long-term exposure to both the frequent negative effects and the emotional consequences of stress may lead to decreased emotional well-being over time (Charles et al. 2013).

Vicarious traumatisation and secondary traumatic stress are terms used to describe the potential emotional impact that working with other people may have upon healthcare professionals over time (Klein 2009, Naturale 2015). This particular type of stress response can occur as a result of knowing, or helping, a traumatised or suffering person (Huggard 2003). Within maternity services, staff may experience a range of psychological and emotional reactions whilst caring for those families experiencing hurt, harm and loss of life (Leinweber et al. 2016, Wallbank and Robertson 2008). These reactions to trauma may include, but are not limited to crying, sadness, intense sorrow, anger, frustration, nightmares, avoidance, depersonalisation, substance abuse, recurring thoughts, and guilt (Coldridge and Davies 2017, Regehr and Bober 2004, Schrøder et al. 2016a, Schrøder et al. 2017). The professional delivering care in these situations may experience 'secondary' or 'vicarious' traumatic stress, and thus may become the 'second victim' (Denham 2007, Wu 2000, Wu and Steckelberg 2012). The symptomologies associated with this type of psychological distress have been linked with those of PTSD (Fligey 1995).

PTSD can develop following either a real or perceived traumatic event or 'stressor' (de Boer et al. 2011). Those who develop PTSD respond to such a traumatic event with intense feelings of fear, helplessness, or horror (Friedman and Resick 2014). They subsequently endure chronic psychological distress, as they repeatedly re-live the traumatic stressor through intrusive, flashback memories (Vermetten 2015). Ultimately, PTSD develops from the inability to cope with the memory of the traumatic event or 'stressor' (Zoladz and Diamond 2016). Here, symptoms can include the display of reckless or self-destructive behaviour, memory flashbacks, hypervigilance, emotional numbness and avoidance (DSM-5 American Psychiatric Association 2013). However, Acute Stress Disorder following an indirect, or direct traumatic event can

also result in symptoms of shame, guilt, anger and self-doubt (National Institute of Mental Health (NIMH) 2015). Significantly, PTSD is often accompanied by depression, substance abuse disorders, and/or other anxiety disorders, which may result in a display of unethical behaviour (Kouchaki and Desai 2014, National Institute of Mental Health (NIMH) 2015).

Depression and anxiety are well-established co-morbid conditions, with anxiety often contributing to the onset of depression (Ferrari et al. 2013). Symptoms of major depression include feelings of worthlessness, chronic fatigue, a sense of guilt, reduced concentration and poor decision making (DSM-5 American Psychiatric Association 2013). These symptoms may cause clinically significant distress. Anxiety generally refers to feelings of nervousness, worry, fear, nervous unease, and physical sensations such as dizziness and shaking (Beck et al. 1988). Although individually distinct, the symptoms of both anxiety and depression also largely overlap with those seen in burnout syndrome (Bianchi, Schonfeld and Laurent 2015).

Burnout is a syndrome consisting of emotional exhaustion, depersonalisation and negative thinking towards others (Yoshida and Sandall 2013). Midwives have been identified as a group at risk of exhibiting high levels of emotional exhaustion and burnout (Borritz et al. 2006, Filby, McConville and Portela 2016). Work burnout is defined as a state of prolonged physical and psychological exhaustion which is perceived as related to the person's work, and client burnout can be defined as a state of prolonged physical and psychological exhaustion which is related to the person's work with clients, patients, students or other kind of recipients in a variety of professions (Hildingsson, Westlund and Wiklund 2013). Symptoms are closely associated with psychological trauma, and occur when a one's emotional resilience is reduced.

Compassion fatigue ensues once one's emotional stores are depleted and the ability to offer compassion is burnt out (Mendes 2014). Compassion fatigue, developed over time, is a construct associated with workers who practise compassion in situations with extended exposure to the suffering of others, accompanied by a lack of emotional support in the workplace (Hegney et al. 2014). The symptoms of compassion fatigue

include sadness, depression, anxiety, intrusive images, flashbacks, numbness, avoidance behaviours, cynicism, poor self-esteem and survivor guilt (Hooper et al. 2010). As such, the symptoms of compassion fatigue can also be linked to burnout, depression, anxiety and traumatic stress.

As the symptom profiles of these types of psychological distress overlap so frequently, the term 'psychological distress' can be used as an umbrella term for a number of related, but distinct constructs. Subsequently, as this thesis aims to present a case for the development of an intervention designed to support midwives in work-related psychological distress, it is important to explore the prevalence of work-related psychological distress in midwifery populations in order to understand the breadth and depth of the issue.

Prevalence of work-related psychological distress in midwifery populations

The prevalence of moderate to severe work-related burnout, depression, anxiety and stress in Australian midwifery populations is reported as high, with 64.9% of 1037 midwives participating in a recent cross-sectional survey study reporting moderate to high levels of burnout, and 20% reporting depression, anxiety and stress symptoms (Creedy et al. 2017). In the United Kingdom, another survey study reported that approximately one third of 421 midwives experience current posttraumatic stress symptoms at levels indicative of clinical relevance following exposure to a traumatic perinatal event (Sheen, Spiby and Slade 2015).

Prolonged exposure to midwifery work over time may result in midwives becoming burnt out. In one survey of Swedish midwives, 15.5% (n=72) scored high in the subscale of work burnout, and 15% (n=69) scored high in the subscale of client burnout (Hildingsson, Westlund and Wiklund 2013). Furthermore, in a 5-year prospective intervention study conducted in Denmark and comprising of 2,391 human service workers, midwives were among the top 3 professions reporting the highest levels of both work and client-related burnout (Borritz et al. 2006). In Norway, 20% of 598 midwives also reported personal or work-related burnout, and 5% reported client-related burnout in another cross-sectional survey (Henriksen and Lukasse 2016).

Although these primary cross-sectional survey studies are predominantly conducted within first world countries, in Senegal, 80% of 226 midwives surveyed also reported "high" levels of emotional exhaustion, whilst 94% reported "average–high" levels of emotional exhaustion (Rouleau et al. 2012). Additionally, another cross-sectional survey of 123 midwives working in Iran reported that 58% experienced either severe or very severe levels of work-related stress (Kordi et al. 2014).

These self-report surveys are cross-sectional, because they collect information on a population, at a single point of time to assess attitudes and explore phenomenon that cannot directly be observed (Håkansson 2013). This cross-sectional survey method has been used successfully in other research looking to explore the wellbeing of healthcare staff (Smart et al. 2014). Cross-sectional survey methods are good at answering questions about prevalence, prognosis, diagnosis, frequency and aetiology but not questions regarding the effect of an intervention (Del Mar, Hoffmann and Glasziou 2010). The findings of cross-sectional studies can also be limited due to prevalence-incidence or 'Neyman' biases, an inability to provide causal inferences, or by only providing a snapshot of data which may only be present for a limited timeframe (Levin 2006). Whilst such cross-sectional studies are considered to be lower in the hierarchy of evidence (Ingham-Broomfield 2016), a global cross-sectional survey presented in collaboration with the World Health Organisation represents the largest involving midwifery personnel to date, and amalgamates findings from 93 different countries (World Health Organization 2016).

Providing an overall picture on the prevalence of work-related distress in midwifery populations, findings from this global study report that 6% of 2470 midwives from Europe, the Americas, Africa, Asia and the Pacific feel 'traumatised' at work on a daily basis (World Health Organization 2016). Additionally, 15% of these midwives are rarely or never supported at work, 45% are exhausted and 10% want to leave the midwifery profession altogether. The analysis within this report suggests that these negative feelings are likely to come as the result of workplace pressures, which may run the risk of midwives developing burnout, and mean that their ability to give quality care is seriously compromised (World Health Organization 2016). This finding is consistent with other research conducted in low and middle-income countries, where burnout is

suggested to disempower midwives to provide high quality care (Filby, McConville and Portela 2016).

The findings from this global online survey come from two qualitative consultation processes, which will be described in greater detail due to both the significance to this research, and their application to a greater and global midwifery population. Firstly, a multilingual participatory workshop was attended by 42 midwives from 14 countries. Such participatory methods are beneficial in developing collaborative and productive partnerships with participants, providing participants with a voice, and harnessing participant engagement to stimulate positive change (Jagosh et al. 2012). Subsequently, a global online cross-sectional survey was conducted in four languages (Spanish, French, English and Arabic) with 2,470 respondents from 93 countries. Qualitative methods such as the ones used in this study can be particularly helpful with inductive research in work and occupational health psychology, and are frequently used where there is limited knowledge (Spector and Pindek 2015).

Overall, the findings of this global survey demonstrate that midwives experience work-related psychological distress around the world. Therefore, it will be relevant within this thesis to also incorporate midwives from non-UK and non-western countries, as such work-related psychological distress may mean that their ability to give quality care is compromised around the world (World Health Organization 2016). Additionally, it will be important to synthesise what is known about the causes and consequences of work-related psychological distress, and understand how these relate to the wider literature on healthcare professionals.

The causes of work-related psychological distress

General life stressors or 'causes of distress' have been classified into three broad categories; (i) Catastrophic events (ii) Major life changes and (iii) Daily hassles (Auerbach and Gramling 2003). Work-related stress has historically been considered as having a multifactorial aetiology (Baker 1985). Yet more recent studies have found that self-perception of stress at work can be predicted by two specific dimensions: perceived high demands and poor relationships in the workplace (Joseph 2013, Marcatto et al. 2014). Others have defined work-related stressors in relation to time

pressures, amount of work to do, work difficulty, and empathy required versus the inability to show one's emotions at work (Joseph 2013, Tsai 2012).

Work-related stress can occur in any profession, yet for this research it is important to consider stress in the health care professions. For instance, in nursing, inadequate staffing, poor skill mix, role ambiguity and inter-professional conflict can cause work-related stress (Andela, Truchot and Van der Doef 2016, Evans, Pereira and Parker 2008). Other work-related stressors have also been evidenced in the medical profession to include long work hours, sleep deprivation and professional responsibility (Burbeck et al. 2002, Klein et al. 2011, Tziner et al. 2015). These stressors are not unique to such professions, and a number of health professions may experience similar work-related stressors, including midwives.

Midwives are exposed to high levels of stress in their work environment (Jahromi et al. 2016, Sato and Adachi 2013). High stress levels occur due to sustained arousal from stressors, as opposed to short term arousal, which may only produce low levels of stress (Brown et al. 1991). In midwifery, severe occupational events or 'stressors', which may produce such sustained arousal have been defined as 1) the death of an infant due to delivery-related causes during childbirth or while on the neonatal ward; 2) an infant being severely asphyxiated or injured at delivery; 3) maternal death; 4) very severe or life threatening maternal morbidity; or 5) other stressful events during delivery, such as exposure to violence or aggression (Wahlberg et al. 2017). Exposure to birth trauma has been acknowledged as an occupational stressor which can lead to posttraumatic and occupational stress for midwives (Leinweber et al. 2016). Other workplace stressors for midwives have been reported as excessive workload, staff shortages, inadequate preparation for adversity, pressures from service users, constraints on practice and autonomy, a demanding need for concentration, attention, and knowledge, lack of support, interpersonal conflict, excessive workloads, exposure to death and dying, discrimination and inter-professional conflict (Banovcinova and Baskova 2014, Hunter and Warren 2014, Sato and Adachi 2013).

This literature demonstrates that both midwives, nurses and physicians experience broadly similar stressors in the workplace, which may all result in work-related

psychological distress. Also, the healthcare environment as a workplace in general includes a panoply of stressors which can negatively affect employees. Generally, these have been described as work overload, lack of independence and rewards, and stressors that stem from patients. Additionally, all healthcare professionals may at some point have the universal stressor of contact with suffering and/or dying patients (Ruotsalainen et al. 2008).

Overall, the causes of work-related stress and distress are broadly related to sociodemographic factors, subjective perceptions, personality characteristics, coping processes, and both positive and negative workplace experiences (Iliceto et al. 2013). Whilst work-related stress is associated with both financial and human costs to society, a wider range of consequences relating to work-related psychological distress can also support greater understanding in this area (Hassard et al. 2017).

The consequences of work-related psychological distress

Work-related psychological distress is associated with a number of negative consequences both at the organisational level (e.g. low productivity, greater number of accidents, increased turnover and absenteeism) and at the individual level (e.g. health issues, anxiety, depression and burnout) (McKnight et al. 2016, Palmer, Cooper and Thomas 2004). For all healthcare professionals, the stressor of working with potentially suffering and/or dying service users, accompanied by the need to regulate personal emotional responses can result in reduced clinical effectiveness, decreased motivation, and development of dysfunctional behaviour and attitudes in the workplace over time (Ruotsalainen et al. 2008). For the midwife, compassion fatigue may hinder the provision of high quality maternity care and result in a symptomatic display of uncaring behaviour (Wallbank and Robertson 2013).

The adverse consequences of psychological distress in the healthcare workplace can be significant. Many doctors suffering work-related burnout have co-morbidities such as depression, poor cognitive function and substance dependency (Brown, Goske and Johnson 2009, Privitera et al. 2014). In nursing, psychological distress has been associated with depression, obesity, insomnia, intra-relational conflicts and aggression, and increased alcohol intake and drug abuse (Adriaenssens, De Gucht and

Maes 2015). The most extreme consequence of psychological distress is death by suicide, where the risk for healthcare professionals is high (Alderson, Parent-Rocheleau and Mishara 2015, General Medical Council (GMC) 2015, Gold, Sen and Schwenk 2013, Strobl et al. 2014).

More generally, the consequences of poor psychological health in the healthcare workforce is associated with increased infection, medical error and mortality for services users (The Royal College of Physicians 2015). Saliently, 60%-70% of healthcare professionals admit to having practised at times when they have been distressed to the point of clinical ineffectiveness (Boorman 2010, National NHS Staff Survey Co-ordination Centre 2014, Romani and Ashkar 2014). For the healthcare worker, work-related psychological distress can result in a marked reduction in quality of life, irregular menstrual bleeding patterns, poor sleep quality, bodily exhaustion and an increased risk of motor vehicle accident (Mohamadirizi et al. 2012, Papathanasiou 2015, West, Tan and Shanafelt 2012). As part of the healthcare workforce, midwives may also experience these same consequences of work-related psychological distress. Yet studies relating to the consequences of psychological distress have been described as lacking for midwifery populations (Creedy et al. 2017).

In reference to systematic reviews of mental health in health professionals, stressors relating to inter-professional conflicts, exposure to patient suffering and professional responsibility remain apparent for mental health professionals (Edwards and Burnard 2003, Fothergill, Edwards and Burnard 2004), social workers (Coyle et al. 2005), cancer professionals (Trufelli et al. 2008), doctors, students and nurses (Beck 2011, Seys et al. 2013b). The most common outcomes associated with these stressors were episodes of occupational burnout, secondary traumatic stress and compassion fatigue, although levels of prevalence in each profession vary significantly in each study. Such outcomes are more likely to co-occur among professionals exposed indirectly to trauma through their work (Cieslak et al. 2014). Workers frequently exposed to direct trauma at work such as emergency staff and paramedics may be more resilient to secondary traumatic stress as they more readily anticipate such direct trauma, and are better prepared via training (Palm, Polusny and Follette 2004).

Based on previous estimates of a 6% prevalence of traumatic stress symptoms in childbearing women (Creedy, Shochet and Horsfall 2000), a midwife who provides care for an average of 200 women per year may experience 12 direct encounters with trauma per year. This may be considered relatively infrequent. As birth rates have remained either fairly consistent or become slightly higher in some areas over time, this prevalence of such exposure may be broadly mirrored over future years (Sedgh, Singh and Hussain 2014). As such, midwives may experience cumulative episodes of occupational burnout, secondary traumatic stress and compassion fatigue, as they may not have the same resilience to secondary traumatic stress that healthcare workers dealing with frequent direct trauma may have. Additionally, midwives are experienced in providing maternity care to well women, and are not always adequately prepared to deliver care to unwell women experiencing severe morbidity due to obstetric complications (Eadie and Sheridan 2017).

Nevertheless, as with all of the causes and consequences of work-related psychological distress presented here, the mechanisms and theories for how such stressors lead to the outcomes and levels of stress they produce will next be explored.

Theories of work-related stress

In addition to evidence-based research, theory-based research can address different knowledge perspectives to reflect a more holistic approach to the problem under study, effectively guiding the development, design, and delivery of an intervention (Wolf 2015). Therefore, in order to secure a more holistic approach to this research, a theory or model of work-related stress must be assigned to underpin this work. This research is concerned with supporting midwives in work-related psychological distress. In taking this approach, two distinct theories; the transactional, which focuses on the structural features of a person's interaction with their environment, and interactional theories, which are more concerned with psychological mechanisms, will be most relevant in this context (Cox, Griffiths and Rial-González 2000, Sidjimova, Dyakova and Vodenicharov 2013).

Applying theories to intervention research

The findings of one recent literature review suggest that in intervention research there is a gap between work-stress theory and its application in the design and development of online interventions for the management of work-related stress (Ryan et al. 2017). This literature review identified 48 online interventions for the management of work-related stress and supporting the psychological well-being of workers, 66% of which were atheoretical in nature. Of the studies included, n=38 were RCT's, n=8 were cohort studies, n=1 study incorporated a pre-and post-test design, and n=1 study presented a qualitative evaluation of an online intervention. Some theory-based interventions cited within this review were underpinned by social cognitive theory (Cook et al. 2007, Cook et al. 2015, Shimazu et al. 2005, Villani et al. 2013), the transtheoretical model of social cognitive theory (Hughes et al. 2011), the transtheorectical model of change (Kim et al. 2015), and self-efficacy theory (Volker et al. 2015). Interventions which used stress-specific theoretical models have all drawn from transactional models of stress (Lazarus 1986), and all reported improvements on a range of measures related to employee well-being, stress, and/or mental health (Ryan et al. 2017). All but one of these theory-based interventions were "individual"-focused (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Williams et al. 2010). One was "organisation" focussed (Stansfeld et al. 2015).

The individual focussed online intervention programmes delivered by Ebert and colleagues, 'GET.ON Recovery' and 'GET.ON Stress' combined both problem and emotion-oriented coping strategies as a basis for their development (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016). Such strategies are again derived from the transactional model of stress (Lazarus 1986). In four randomised controlled trials of these interventions conducted with samples sizes of n=128 teachers using 'GET.ON Recovery' over a 6-week period (Ebert et al. 2015), and n=264 insurance company employees using 'GET.ON Stress' over a period of 7-weeks (Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016) results demonstrated medium to large reductions in stress perception (Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016), and insomnia (Ebert et al. 2015). Improvements were seen in the 'GET.ON Stress' RCT's on measures related to mental-health, work-related health and skills and

competences (Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016). The RCT on 'GET.ON Recovery' saw sustained moderate to large improvements in mental health, sleep, perseverance cognitions and recovery experiences outcomes (Ebert et al. 2015).

The 'Stress GYM' delivers 9 online modules, each individual focussed, and grounded in the theoretical underpinnings of the stress-specific model of cognitive appraisal (Lazarus 1986). A cohort study recruited n= 142 military personnel to use this online intervention without specifying a time period or offering support (Williams et al. 2010). This study found that there was a significant reduction in stress intensity post-intervention. The organisation focussed online intervention delivered by Stansfeld and colleagues delivered an e-learning health promotion course to managers, based on the transactional model of stress (Stansfeld et al. 2015). In their pilot of a clustered RCT demonstrating small benefit from the intervention on well-being, n=350 employees recruited from mental health services provided a response to the Warwick Edinburgh Mental Wellbeing Scale at baseline and n=284 at follow-up.

Whilst some interventions included within this literature review were atheoretical in nature, or were underpinned by non-stress-specific theories, the intervention research studies described in detail above have all used the stress-specific transactional model in the design of online interventions, and have all reported promising results (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). They have also used this model in developing components such as online cognitive-behavioural, motivational, e-learning, relaxation, and mindfulness techniques to effectively support employee well-being and enable staff to manage their work-related stress. As such, a stress-specific theoretical model which is grounded within the transactional theories of stress may also be most appropriate for this research.

Transactional theories of stress

The most commonly used transactional theory suggests that stress is the direct product of a transaction between an individual and their environment which may tax their resources and thus threaten their wellbeing (Lazarus 1986, Lazarus and Folkman 1987). Yet a more recent version of this theoretical model suggests that it is the

appraisal of this transaction that offers a causal pathway that may better express the nature of the underlying psychological and physiological mechanisms which underpin the overall process and experience of stress (Lazarus et al. 2001).

In this sense, any aspect of the work environment can be perceived as a stressor by the appraising individual. Yet the individual appraisal of demands and capabilities can be influenced by a number of factors, including personality, situational demands, coping skills, pervious experiences, time lapse, and any current stress state already experienced (Prem et al. 2017). One multidisciplinary review provides a broad consensus that stressors really only exert their effects through how an individual perceives and evaluates them (Ganster and Rosen 2013).

As such, the experience of workplace stress according to the transactional theory, is associated with exposure to particular workplace experiences, and a person's appraisal of a difficulty in coping. This experience is usually accompanied by attempts to cope with the underlying problem (Aspinwall and Taylor 1997, Guppy and Weatherstone 1997). In order to recognise these external and internal elements of workplace stress, Cox (1993) outlined another modified transactional theory. This theory represented the sources of the stressor, the perceptions of those stressors in relation to his/her ability to cope, and the psychological and physiological changes associated with the recognition of stress arising.

As with all transactional theories of work-related stress, it is the concept of appraisal that has been criticised for being too simplistic and for not always considering an individuals' history, future, goals and identities (Harris, Daniels and Briner 2004). Additionally, in his later works, Lazarus stressed that his transactional theories of stress failed to acknowledge the outcomes associated with coping in specific social contexts and during interpersonal interactions (Lazarus 2006a). This research is concerned with managing, preventing and recognising work-related psychological distress in midwifery populations. Consequently, a theory of stress which amalgamates the transactional model of stress with the associated outcomes of stress may be most suited to this research. As interactional theories of stress focus on the impact of environmental

factors on the individual, it would subsequently be appropriate to explore such models here (Tallodi 2015).

Interactional theories of stress

Interactional models emphasise the interaction of the environmental stimulus and the associated individual responses as a foundation of stress (Lazarus and Launier 1978). For instance, the Effort-Reward Imbalance (ERI) theory posits that effort at work is spent as part of a psychological contract, based on the norm of social reciprocity, where effort at work is remunerated with rewards and opportunities (Siegrist 1996, Siegrist 2012). Here, it is the imbalance in this contract that can result in stress or distress. Yet in contrast to transactional theories of stress, this imbalance may not necessarily be subject to any appraisal, as the stressor may be an everyday constant occurrence.

The Person-Environment Fit theory is one of the earliest interactional theories of work-related psychological distress, suggesting that work-related stress arises due to a lack of fit between the individual's skills, resources and abilities, and the demands of the work environment (Caplan 1987, French, Caplan and Van Harrison 1982). Here, interactions may occur between objective realities and subjective perceptions and between environmental variables and individual variables. In this case, it has been argued that stress can occur when there is a lack of fit between either the degree to which an employee's attitudes and abilities meet the demands of the job or the extent to which the job environment meets the workers' needs (French, Rodgers and Cobb 1974).

The Job Demand-Control (JDC) theory supposes that work-related stress can result from the interaction between several psychological job demands relating to workload such as cognitive and emotional demands, interpersonal conflict, job control relating to decision authority (agency to make work-related decisions) and skill discretion (breadth of work-related skills used) (Karasek Jr 1979). The JDC model is concerned with predicting outcomes of psychological strain, and workers who experience high demands paired with low control are more likely to experience work-related psychological distress and strain (Beehr et al. 2001).

The original concept of job demand and control was expanded in 1988 to become the Demand Control Support (DCS) theory, describing how social support may also act as a buffer in high demand situations (Johnson and Hall 1988). As social support as a coping mechanism can moderate the negative impacts of job stress, another later version of the JDC theory was developed to suggest that it is those individuals who experience high demands paired with low control and poor support who are most at risk of work-related psychological distress (Van der Doef and Maes 1999). These later versions of the JDC theory were developed, as earlier versions were considered to be too simplistic and ignorant of the moderating effects of social support upon the main variables. However, the perceived job demands and decision autonomy outlined in the JDC theory have been acknowledged as being key factors in determining the effects and outcomes of work on employees' health (Cox, Griffiths and Rial-González 2000).

Use of stress-specific theories in intervention research

Currently, there is a gap between stress-specific theories and their application in the design and development of online interventions designed to support those in work-related psychological distress (Ryan et al. 2017). It has been suggested that to better understand stress, researchers need to think in process terms so that their research is guided by ideas about how things work (Lazarus 2006b). This advocates that a process-orientated theory which builds on describing processes may also provide a suitable underpinning for this research.

Some previous intervention research has successfully applied Lazarus' transactional theory of stress to the design and development of online interventions designed to support the workforce in work-related psychological distress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). However, the perceived job demands and decision autonomy outlined in the earlier developed JDC theory may also be key in determining the effects and outcomes of work on employees' health (Cox, Griffiths and Rial-González 2000). Additionally, the JDC model supposes that work-related stress can result from the interaction between stressors such as high emotional demands, interpersonal conflict, and low job control relating to poor decision authority (Karasek Jr 1979). These stressors have been listed as some of the major stressors facing midwifery populations around the world (World

Health Organization 2016). Therefore, a theoretical, process-orientated model which combines both Lazarus' transactional theory of stress and coping (Lazarus 1986) and Karasek's JDC theory (Karasek Jr 1979) may provide the most appropriate underpinning for this thesis.

One such model which incorporates both of these theories is the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010). This model, shown in figure 1 demonstrates how individuals appraise, cope with and experience the outcomes of occupational stress. This process involves an individual firstly encountering a potential stressor and appraising their experience of it. Subsequently, this model demonstrates how the individual then goes on to a secondary phase of risk appraisal, where coping strategies are initiated in response to the individuals experience of the initial stressor. The model also outlines how immediate outcomes and outcomes after 2 to 4 weeks are involved throughout this process of stress and coping.

In this case, the model demonstrates a direct link between the primary appraisal of the stressor and primary stress outcomes, and also a direct link between the primary and secondary stress outcomes. This process demonstrates how the appraisals of stressful events can significantly impact on an individual's experience of stress and its associated outcomes. This model also provides support to the effect of emotions on a person's choice of coping strategy (Ficková 2002). Notably, this model posits that the experience of stress, coping and the development of negative outcomes can occur at different points in the process of occupational stress and coping, and can be triggered by both psychological and behavioural coping factors.

Figure 1: The Revised Transactional Model of Occupational Stress and Coping

This model not only describes the process of occupational stress and coping, but also the immediate and the subsequent outcomes of work-related stress. Moreover, this model allows the nature of the potential stressor to remain open to the appraisal of the individual. Used in this research, this would allow midwives to acknowledge that psychological distress can occur as a result of an unlimited number of stressors, when appraised as such by the individual. This model also demonstrates the fluid nature of stress outcomes in the transactional process. Such a model would be useful to illustrate the process and development of work-related stress and coping, as midwives look to understand processes which may lead them to more effectively manage work-related psychological distress in themselves and others.

This model may also appropriately underpin the development and design of an online intervention designed to support midwives in work-related psychological distress, as it uses the same components of the transactional theory used successfully in preceding online interventions, which report improvements on a range of measures related to employee well-being, stress, and/or mental health (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). The reason that this particular revised transactional model may be most suited to this research, is because it maintains the integrity of Lazarus' highly applicable

transactional theory whilst also using other relevant research findings to build a chronology of influence between appraisal, coping and work-related stress outcomes (Goh, Sawang and Oei 2010). As such, it is this theory which will be used to underpin this research and any subsequent work in this regard, yet it is also important here to rule out other alternate models of stress.

Alternate models of stress

Early psychological models of stress may be suitable for describing how environmental events generate stressful appraisals for individuals. Yet another theoretical model, devised via a multidisciplinary review of work stress and employee health identifies the intervening physiological processes that link stress exposure to health outcomes (Ganster and Rosen 2013). This Allostatic load model of the stress process builds on earlier cognitive appraisal models of stress and the work of Seyle (Seyle 1983) to describe the developments of allostasis in the process of stress. Allostasis is the process of adjustment for an individual's bodily systems that serve to cope with real, illusory, or anticipated challenges to homeostatic (stable) bodily systems. This model proposes that continued overstimulation leads to dysregulation, and then to poor tertiary health outcomes. However, the sequence of this model has proven difficult to validate empirically. Additionally, this research is concerned with the psychological rather than the physical outcomes of work-related stress. As such, this allostatic model would not be appropriate for use in this case.

Another model of work stress has been developed in response to the Health and Safety Executive's (HSE) advice for tackling work-related stress and stress risk assessments (Cousins* et al. 2004, HSE 2001). This model, developed by Cooper and Palmer underpins the theory and practice advocated by the HSE (Palmer, Cooper and Thomas 2003). This model explores the stress-related 'hazards' or sources of stress facing employees in the workplace. The acute symptoms of stress are also set out, and these symptoms relate to the organisation, as well as the individual. The negative outcomes are outlined for both an individual's physical and mental health, however beyond this, outcomes are presented as financial losses for both the individual and the organisation. As this research is concerned with supporting the midwife as an

individual, the organisational repercussions in relation to work-related stress are not relevant to this work at this time.

Another model of work stress developed by Cooper and Marshall sets out the sources of stress at work, factors which determine how an individual may respond to such stressors, go on to experience acute symptoms, and eventually go on to reach the chronic disease phase affecting one's physical and/or mental health (Cooper and Marshall 1976). This model is concerned with the long-term consequences of work-related stress, as well as the acute symptoms of, sources of, and the individual characteristics associated with work-related stress. Whilst this research is concerned with the causes and consequences of work-related psychological distress in midwifery populations, this model fails to demonstrate the overall process and experience of work-related stress. As such, it is not wholly suitable for use in the management, prevention and recognition of work-related psychological distress in midwifery populations.

The above models all outline potential stressors or hazards relating to the workplace. Yet work-related stressors cannot always remain separate from general life stressors. Illustrating this, the Conservation of Resources (COR) Model, an integrated model of stress looks to encompass several stress theories relating to work, life and family (Hobfoll 1989). According to this theory, stress occurs when there is a loss, or threat of loss of resources. This is because individuals ultimately seek to obtain and maintain their resources, loosely described by the authors as objects, states, conditions, and other things that people value. Some of these stressors may relate to resources such as one's home, clothing, self-esteem, relationship status, time and/or finances. In this context, work/relationship conflicts may result in stress, because resources such as time and energy are lost in the process of managing both roles effectively (Hobfoll 2001). This may in turn result in job dissatisfaction and anxiety, although other resources such as self-esteem may moderate such conflicts and stress (Hobfoll 2002). Such a model would be useful in the development of resource-focused interventions which aim to make changes in employees' resources and subsequent outcomes (Halbesleben et al. 2014). Yet this is not the aim of this research.

This exploration of work-related stress theories has singled out the revised transactional model of occupational stress and coping presented by Goh and colleagues as being most applicable to this research (Goh, Sawang and Oei 2010). However, in order to situate this theory appropriately within the early stages of intervention development, the problem requiring the solution must be wholly clarified and reiterated.

Identifying the problem

Previous research has identified that midwives can experience work-related psychological distress whilst caring for childbearing women and their families (Hunter 2011, Leinweber et al. 2016, Schrøder et al. 2016a, Schrøder et al. 2016b, Sheen, Spiby and Slade 2015). In addition to any impacts of distress on midwives themselves (Mohamadirizi et al. 2012), this may also have implications for maternity care, as the wellbeing of healthcare staff is linked with the quality and safety of healthcare services (Hall et al. 2016, Maben et al. 2012, Sawbridge and Hewison 2013, The Royal College of Physicians 2015). More specifically, poor staff wellbeing has been correlated with an increase in infection and mortality rates (Boorman 2009, Boorman 2010, Francis 2013).

Whilst work-related psychological distress can negatively impact upon a midwife's both personal and professional life (Wahlberg et al. 2016), there are also other consequences for the maternity services. These may include staff shortages (Jarosova et al. 2016), an increase in clinical errors (Boorman 2009), reduced productivity and a reduction in care quality (Black 2012). Financial consequences may also include increased costs in relation to litigation and recruitment (Edwards et al. 2016). Midwives in work-related distress may also be less able to communicate effectively or develop empathetic and therapeutic relationships with childbearing women (Leinweber and Rowe 2010). They may also incur more sickness absence than other colleagues (Henriksen and Lukasse 2016). These consequences all have implications for the delivery of high quality maternity services.

A recent maternity review has suggested that maternity staff report higher levels of perceived stress and a less supportive work environment than other healthcare staff (Cumberlege 2016). This report recommends that healthcare services "recognise the

impact on staff and have appropriate support structures in place to support them to report adverse events and to deal with their own emotional reaction to the incident". Individually, midwives may respond to distress in a variety of ways. Some may use active coping, venting, the positive reframing of events, self-distraction and substances to manage their psychological distress (Begley 2002, Muliira and Bezuidenhout 2015, Saridi et al. 2016). Yet some of these coping strategies may obstruct the provision of high quality maternity care.

Alongside these issues, the prevalence and consequences (personal, professional and organisational) of work-related psychological distress in midwifery populations add to the need for effective psychological support for midwives in the workplace. However, whilst there are initiatives to help overcome the social, professional and economic barriers to high quality midwifery practice, gaps remain in the exploration of adequate support provision for midwifery populations practising in work-related psychological distress (World Health Organization 2016). Due to the direct links between work-related psychological distress and poorer personal, organisational and professional outcomes, it is this area of focus which may deliver some promise in supporting midwives to provide high quality care, and enjoy a higher quality of both personal and professional life.

Midwifery populations around the world suggest that the provision of a safe space to unburden, effective peer support, networking and the sharing of experiences could enable the midwifery profession to overcome some of the barriers to providing high quality care (Beck, LoGiudice and Gable 2015, World Health Organization 2016). Yet they also suggest that they feel unable to speak out and ask for help within hierarchical midwifery workplaces (Begley 2002). As such, midwifery populations around the world may benefit from the provision of both confidentiality and anonymity when seeking help. Online delivery may be most appropriate for this task, using intervention components drawn from the transactional model of stress, used effectively in other intervention research (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). Yet prior to making any further assumptions, the suitability of this medium must first be explored in more detail.

Why an online intervention?

The prevalence and consequences of work-related psychological distress accompanied by the need for effective support in the midwifery workforce remains broadly similar in a variety of countries. Therefore, in order to support geographically diverse midwifery populations in work-related psychological distress, the internet may offer broad coverage and easy access to support. This notion is echoed by other researchers, who suggest that online interventions which can reach larger numbers of people are required (Maher et al. 2014, Muñoz 2010).

Online interventions designed to ameliorate psychological stress can be effective and have the potential to reduce stress-related mental health problems on a large scale (Heber et al. 2017). Online interventions can also provide a low-cost and more accessible alternative to face-to-face support for employees (Ebert et al. 2014, Lal and Adair 2014). This lower cost may in turn make widespread use and adoption more feasible and acceptable (Craig et al. 2008). These factors may also make an online intervention more suited to supporting a larger group of midwives in a variety of geographical locations. Such interventions can also be made culturally portable and adaptable, and can therefore be expanded to effectively support other populations around the world (Brijnath et al. 2016, Harper Shehadeh et al. 2016).

There are a variety of effective online interventions for the delivery of support (Bakker D, Kazantzis N, Rickwood D, Rickard N 2016, Barak et al. 2008, Davis and Calitz 2016, Knaevelsrud and Maercker 2007, Kuester, Niemeyer and Knaevelsrud 2016, Lim and Thuemmler 2015, Spijkerman, Pots and Bohlmeijer 2016). Users of online support interventions report benefits such as group cohesiveness, information exchange, universality, instillation of hope, catharsis, altruism, improved mental health literacy, flexibility in terms of standardisation and personalisation, interactivity, consumer engagement, and psychological and social support (Chung 2014, Erfani, Abedin and Blount 2016, Idriss, Kvedar and Watson 2009, Lal and Adair 2014, Vilhauer 2009). Similar benefits are also noted in the use of other online interventions drawn from the transactional model of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). As such, new online

interventions which use a stress-specific model in their design could also generate similar benefits for midwives as a target population.

For employees in general, online interventions have the potential to reduce stress in the long-term, and have been considered a valuable alternative to face-to-face interventions as they may offer a cost-effective, convenient and evidence-based way of supporting the mental health of workers on a large scale (Heber et al. 2016, Lehr et al. 2016). This is significant, as some midwives who engage in face-to-face support can find it challenging to attend all sessions and complete homework given between sessions (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016). As such, an online intervention may be more suited to midwives requiring more flexible access to less structured support interventions. Online interventions have been evidenced as being capable of enhancing positive mental health and psychological well-being in nursing and allied health populations (Bolier et al. 2014, Cieslak et al. 2016), yet this promise has yet to be tested for midwifery populations, whose role is considered to be similar, yet distinctly non-medical.

Additionally, health care professionals are known to display poorer help-seeking behaviours from early in their careers (Dyrbye et al. 2015, Edwards and Crisp 2016, Galbraith, Brown and Clifton 2014). These poor help-seeking behaviours are largely attributed to workplace stigma, fear of punitive action and the avoidance of appearing weak (Gold et al. 2016, Monroe and Kenaga 2011, Robertson and Thomson 2015). As such, the anonymity and confidentiality often offered as the principle advantage to internet based interventions may also enable some midwives to seek help where they may not otherwise have done so (Crisp and Griffiths 2014, Haemmerli, Znoj and Berger 2010, Kenwright et al. 2004, Wootton et al. 2011, Ziebland and Wyke 2012).

An online intervention may be one option midwives around the world may turn to when aiming to prevent, manage and understand work-related psychological distress. However, prior to exploring the development of such an intervention, further clarity regarding how this particular online intervention may exist at this stage is required.

Proposing a complex online intervention

Internet-based interventions are a promising approach to the prevention and treatment of mental health problems (Sander, Rausch and Baumeister 2016). An online intervention designed to support midwives in work-related psychological distress would be a complex intervention, and as such, would benefit from adherence to the Medical Research Council's (MRC) Framework for developing and evaluating complex interventions (Craig et al. 2008). A complex intervention combines different components in a whole that is more than the sum of its parts (Hawe, Shiell and Riley 2004). The proposed online intervention will be a complex one because it will employ a number of interacting components, seek to evaluate a number of outcomes and tailor its' design to the needs and priorities of midwives in work-related psychological distress (Craig et al. 2008).

Evaluating and exploring a complex intervention is about practical effectiveness (Trussell 1999). This research sits within the primary development phase of the MRC framework for developing and evaluating complex interventions (Craig et al. 2008). This development phase consists of identifying the evidence base, identifying/developing theory, and modelling processes and outcomes. The next step in any future research would be to test feasibility, pilot testing procedures, estimate recruitment and retention, and determine sample sizes for ongoing research (Craig et al. 2008). In proposing the development of a new online intervention to support midwives in work-related psychological distress using a stress-specific model in its design, it will be important to explore which online components may be most suitably applied. In this case, suggested components will be based on the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010).

The revised transactional model of occupational stress and coping demonstrates how those experiencing work-related stress seek social support as a way of coping (Goh, Sawang and Oei 2010). In the largest online global survey of midwives, participants also proposed that social support networks, peer support, networking and the sharing of experiences were required for midwives to feel safe, secure and satisfied in their working life (World Health Organization 2016). Online peer to peer support has also

shown significant promise in other research supporting those experiencing mental health issues (Ali et al. 2015). Online social support or 'social networking' can be of particular benefit to those coping with stigmatised health issues, those who are time and travel limited, and those who lack support resources in the face-to-face world (Wright 2016).

A social networking tool can be defined as a web-based service that allows individuals to construct a profile within a bounded system, articulate a list of other users with whom they share a connection, and connect with, view and traverse their list of connections and those made by others within the system (Ellison 2007). The provision of a 'social networking' component within the online intervention may encourage self-disclosure, improve one's ability to cope with a stressor, decrease rates of depression and stress, and enhance mood (Huang 2016, Li et al. 2015, Oh, Ozkaya and LaRose 2014). As such, one component of an online intervention to support midwives in work-related psychological distress may include the provision of peer support tools within a social network of midwifery professionals.

Some individuals may have difficulty constructing the concept of mental ill health in themselves (Trippany, Kress and Wilcoxon 2004, Van Voorhees et al. 2006). Additionally, some burnt out clinicians have been found to perceive their own personal needs as "inconsequential" (Shanafelt et al. 2002). Online interventions which are tailored to a specific population, deliver evidenced-based content, and promote interactivity and experiential learning are more likely to be successful in promoting improvements in mental health literacy (Brijnath et al. 2016). Another online intervention, driven by the transactional model of stress to support the psychological wellbeing of the workforce has also been designed for participants to develop an awareness of stress (Williams et al. 2010). Therefore, a targeted online intervention to support midwives and student midwives in work-related psychological distress may include interactive learning components designed to promote the development of insight and the recognition, management and/or prevention of mental ill health.

Equally, mental health e-learning resources have the potential to be widely effective (Karasouli and Adams 2014). An online intervention to support midwives in work-

related psychological distress may also engage users in self-management exercises, which have been evidenced to effectively support professionals in the workplace (Lehr et al. 2016). Such components may include online wellbeing and gratitude diaries (Cheng, Tsui and Lam 2015), audio-narrated videos and graphics designed to promote goal setting, problem-solving, the identification and restructuring of negative thoughts, and effective time management (Billings et al. 2008), and positive psychology and mindfulness exercises (Feicht et al. 2013). These components have been incorporated in other online interventions, rooted within the transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010).

In line with these other interventions, rooted within the transactional models of stress an intervention to support midwives could also be individual, rather than organisation-focussed, and aim to identify, manage, cope with and reduce work-related psychological distress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). Yet in rooting the delivery, features, functionalities and components of such an intervention within the revised transactional model of occupational stress and coping, both users and researchers may also be more able to comprehend how each of these relate to the amelioration of work-related psychological distress overall (Goh, Sawang and Oei 2010).

The relevant theories, concepts, contexts and rationales associated with the development of the proposed complex online intervention have been explored thus far within this chapter, as this is more likely to result in an effective intervention than is a purely empirical or pragmatic approach (Albarracín et al. 2005). These explorations have exposed gaps in research and new ideas in the form of a proposed online intervention to be examined. As such, new research questions can now be developed using this ‘gap-spotting’ approach, which is the most dominant way of developing research questions from the existing literature (Sandberg and Alvesson 2011).

Development of research questions

Even at this early stage of research, it is important to begin thinking about implementation, and ask questions such as 'would it be possible to use this?' and 'what are the obstacles?' (Craig et al. 2008, Glasgow, Lichtenstein and Marcus 2003). An online intervention could provide confidentiality and anonymity to both midwives and student midwives in work-related psychological distress seeking support. Yet this may have ethical implications, as midwives may be able to divest disclosures without consequence. If such issues remain unexplored, then any further planning in the development of such an online intervention may not be possible. This is because at present, any midwife registered with the Nursing and Midwifery Council (NMC) must abide by its codes of conduct. Such codes require a midwife to be fit to practise.

The NMC states that being fit to practise requires a nurse or midwife to have the skills, knowledge, good health and good character to do their job safely and effectively (The Nursing and Midwifery Council (NMC) 2015). The NMC is required to protect the public in this regard by investigating various allegations, including misconduct, lack of competence, not having the necessary knowledge of English, criminal behaviour and serious ill health. If the identity of a midwife remained unknown, yet their fitness to practise became compromised, no allegations could be linked to any particular midwife. Additionally, although other registered midwives must be supportive of colleagues who are encountering health or performance problems according to the NMC, this support must never compromise or be at the expense of patient or public safety. Consequently, in providing anonymity and confidentiality to support midwives in distress, any particular person who may be placing patient or public safety at risk could not be identified. Therefore, such an individual may never be held to account, either by their peers, the public or the regulator, and this set of circumstances may not be acceptable to either the midwifery profession, the regulator or the public at large.

The ethical issues outlined above may also be apparent for midwives around the world. Accordingly, the aim of research question one will be to explore these ethical issues in greater depth, so that in line with the MRC framework for developing complex interventions, decisions can be made as to whether or not the intervention can work and be accepted in everyday practice (Craig et al. 2008). Additionally, these

ethical considerations must be examined, as the provision of confidentiality and anonymity and their subsequent corollary, amnesty may conflict with deeply entrenched beliefs and values linked to the accountabilities and codes of conduct which a midwife is expected to uphold, and as such may hinder any further progress in developing this complex intervention (Craig et al. 2008).

According to the MRC framework for developing complex interventions, it is important to explore the existing evidence in relation to whether or not the proposed intervention is likely to be effective, implementable, and favourable (Craig et al. 2008). It is suggested that such information is ideally collated via a systematic review. Although the proposed online intervention presented here may effectively support midwives and student midwives in work-related psychological distress, it is not comprehensively known what support interventions are already available, what outcomes they produce, and how users may experience them. Thus, research question two will aim to examine existing support provisions in order to inform the development of this research.

Equally, although the online features proposed for this intervention may be evidence and theory based, the preferred features of an online intervention are as yet unclear. This gap in research suggests that further study is required. Therefore, research question three aims to explore the preferences of midwives and other key stakeholders in relation to what should be prioritised in the content development, design and delivery of an online intervention designed to support midwives in work-related psychological distress. This will be an important phase in the development of this online intervention, as once the preferences of midwives and other key stakeholders are explored, future co-production can be more strategic in designing this intervention in line with these preferences, and the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). This research also reflects the research processes recommended by the MRC framework for developing complex interventions, to be done during the early development and planning phase (Craig et al. 2008).

The specific research questions to be explored within this thesis are:

1. What are the ethical considerations in relation to the provision of online interventions to support midwives and/or student midwives in work-related psychological distress?

2. a) What interventions have been developed to support midwives and/or student midwives in work-related psychological distress? and b) What are the outcomes and experiences associated with the use of these interventions?

3. What are the areas of expert consensus in relation to the delivery, features, functionalities and components of an online intervention to support midwives and/or student midwives in work-related psychological distress?

Chapter two explores the ethical considerations in relation to the provision of online interventions to support midwives in order to address research question one via a critical literature review. A mixed-methods systematic review is presented within chapter three. This review addresses research question two, in identifying those interventions already in existence to support midwives and/or student midwives in distress, and by exploring the outcomes and experiences of using these interventions via the literature retrieved. Research question three is addressed via a 2-round Delphi study reported within chapter four, where the priorities and preferences for the content development, design and delivery of this proposed online intervention are defined via consensus.

Chapter Conclusions

This chapter has presented a global overview of current understanding in relation to the nature and origins of work-related psychological distress in midwifery populations. The relevant theories, concepts, contexts and rationales associated with the development of a proposed complex online intervention have also been explored.

Notably, this chapter has presented the known prevalence of midwives who feel traumatised and unsupported at work on a daily basis. Such negative feelings can lead

to burnout and other types of work-related psychological distress. It was also shown how work-related psychological distress may manifest itself following particular stressors. The causes and consequences of work-related psychological distress in midwifery populations accompanied by the lack of evidence based support provision available for midwives has demonstrated a need for further intervention research in this area. However, it is not currently known what the preferences of midwives may be in the design of an online intervention, and whether or not confidentiality and anonymity may be practicable for professional midwives experiencing work-related psychological distress. It is also not clear what interventions are already available to support midwives in work-related psychological distress, what outcomes they produce and how midwives may experience their use. In subsequent chapters, this thesis will aim to address these gaps in research.

In line with the early phase of the MRC framework for developing complex interventions, chapter two will firstly explore the ethical considerations as they relate to the provision of confidential and anonymous online support for midwifery populations. This will be important, as such components may conflict with deeply entrenched values, and may therefore hinder any further progress in developing this complex intervention (Craig et al. 2008).

Chapter Two: Confidentiality, anonymity and amnesty for midwives in work-related psychological distress seeking online support – A critical literature review

Chapter one has provided a background and context to this research. It has also outlined the concept of a proposed online intervention designed to support midwives in work-related psychological distress. This chapter presents a critical review of the literature which argues that the provision of confidentiality, anonymity and amnesty within this online intervention to support midwives should be upheld in order to secure the greatest benefit for the greatest number of people. This research has been published elsewhere (Pezaro, Clyne and Gerada 2016).

The overriding question associated with this review is: What are the ethical considerations in relation to the provision of online interventions to support midwives and/or student midwives in work-related psychological distress?

The ethical considerations in relation to online interventions to support midwives in work-related psychological distress have yet to be explored. As a first step towards effective decision making in this area, it is important to acknowledge that midwives can be reluctant to seek help for fear of stigma (Currie and Richens 2009, Robins 2012, Sheen, Spiby and Slade 2016, Young, Smythe and Couper 2015). Those who prefer to engage in online support rather than traditional face-to-face services have previously done so because of stigma, shame, linguistic barriers and inconvenience (Chang 2005, Suler 2004). As such, an online intervention which offers anonymity, confidentiality and their corollary, amnesty, may be the preferred option for some midwives in place of face to face support.

Some midwives fear being removed from their professional register, and perceive their regulator to be punitive (Wier 2017). Consequently, midwives may only disclose an episode of impairment or issue of concern without fear of retribution or regulatory referral for the purpose of help seeking. This may require the provision of confidentiality, anonymity and consequentially, amnesty. In exploring the principles of biomedical ethics, Beauchamp and colleagues also point to a need for both anonymity

and confidentiality, as they have been classified in this context as key factors required in the facilitation of patient care (Beauchamp and Childress 2001). This is because without the promise of confidentiality and anonymity, those in need of help may not be adequately trusting to reveal crucial information about some of the more sensitive issues relating to their psychological wellbeing. This would consequently undermine the delivery of appropriate care (Jones 2003, Kipnis 2006, Saunders, Kitzinger and Kitzinger 2015). However, midwives are professionally accountable for patient care, their own health and fitness to practise. As such, the provision of anonymity, confidentiality and their corollary, amnesty, in this particular case require further ethical exploration and debate.

Society has seen several successful episodes where a period of amnesty has been granted for the benefit of all. Examples of this include gun, drug and knife amnesties, where individuals can admit to an offence without any risk of reprisal (Eades 2006, Kenyon et al. 2005, Kirsten 2005). In the context of healthcare, there have also been successful 'DUMP' (Disposal of Unwanted Medication Properly) campaigns, where unwanted medicines have been relinquished to pharmacies for safe disposal without the fear of judgement or retribution (West et al. 2014). The benefits of these periods of amnesty are that those in need of help may take a unique window of opportunity to seek help, where they may not otherwise have done so. Some of the risk of harm to others can also be removed. For midwives in distress seeking support online, amnesty via confidentiality and anonymity could enable the disclosure of an impairment or issue of concern, without fear of retribution or regulatory referral. Such online disclosures may lead to a midwife in distress seeking face-to-face support or initiating behaviour change. This may be done via specific strategies such as those outlined within the Pathways Disclosure Model (Cooper 2004).

Within the Pathways Disclosure Model, it is the safety of absolute anonymity and confidentiality which remain key to recovering from episodes of psychological distress (Cooper 2004). Although this model has only previously been applied to those with gambling and alcohol addictions, this model could also be applied to supporting midwives using an online intervention during work-related psychological distress in relation to disclosure about an impairment or issue of concern. Figure 2 demonstrates

the various steps towards face-to-face disclosure as outlined by Pathways Disclosure model (Cooper 2004). This model demonstrates how users who may initially disclose nothing about their distressing situation can begin by reading information and adopting a 'lurking' state online. Users may then move throughout the early phases of online participation into a leadership state, where they may then move to make face-to face disclosures. The model shows how they may then take a full leadership role in the disclosure of their distressing situation for the purpose of face-to-face help seeking.

Figure 2: The Pathways Disclosure Model

(Cooper 2004)

It has been reported that midwives work in cultures which promote service and sacrifice, which may be prioritised above the individual rights of midwives' (Calvert 2014, Kirkham 1999, Kirkham and Stapleton 2000). As such, online interventions that prioritise the needs of midwives in psychological distress may be one option midwives may turn to for support. Such interventions may also have the potential to become a powerful tool in improving midwife health and wellbeing. This may in turn protect the public more widely, improve patient care and the quality of safer healthcare services for all (The Royal College of Physicians 2015).

There is strong and recent evidence to support the implementation of online psychotherapeutic interventions, which have proved beneficial in providing effective and therapeutic support for other populations in psychological distress (Allen et al. 2016, Barak et al. 2008, Kuester, Niemeyer and Knaevelsrud 2016). An effective and therapeutic online intervention can be defined as one where members are able to communicate, find information and engage (Preece 2000).

Some of the benefits of providing support online rather than within a face-to-face scenario are increased accessibility, identity protection, and, comfort for users (Harris and Birnbaum 2015). In an online environment, the benefits of anonymity for vulnerable online users include a significant disinhibition effect, increased feelings of safety and an increased ability for the user to speak openly and honestly for the purpose of developing a therapeutic connection (Harris and Birnbaum 2015). For midwives, this could mean speaking openly for the purpose of recovery and help seeking, which could in turn improve the safety and quality of maternity services.

Confidentiality

Confidentiality is a mutual understanding between two or more parties, where it is the belief of the sender that his or her information will not be shared, and the promise of the receiver to protect and not disseminate the information shared (Ellenchild 2000). For midwives, confidentiality is a professional obligation and can only be broken in the interests of patient and public safety. Confidentiality in the context of an online intervention would mean that users would be expected to keep the identities of individual names, organisations and places confidential. In this context, providing

confidentiality to midwives online will also inhibit other users from reporting concerns to professional regulators, as all users remain unidentifiable.

Confidentiality and anonymity in combination are particularly important to help those needing support with suicidal ideation (Kerkhof, van Spijker and Mokkenstorm 2013). However, confidentiality may be legitimately broken if a person is at risk of harming themselves. As this would conflict with the provision of anonymity, there is an ethical decision to be made with regards to how this trade off might be managed. It has been proposed that for those feeling vulnerable, allowing for anonymous and confidential contact and support online may be the optimal method of engagement (Carretta, Burgess and DeMarco 2015). This may be because those in distress often avoid professional help, and online services can provide anonymity, confidentiality, a sense of immediacy and are highly acceptable to younger people (Gulliver et al. 2012, King et al. 2006, Santor et al. 2007). Additionally, research has shown that those at higher risk of suicidal ideation may be more likely to engage with online support (Dunlop, More and Romer 2011).

However, providers of online support interventions may not have the ability to assess the mental state of the participant or intervene in a time of crisis. This is of concern as some virtual environments can be emotionally dangerous for the user (Williams 2012). Any mitigation of risk and harm must be balanced with the benefits associated with supporting midwives.

Anonymity

Anonymity has three distinct features: identity protection, action anonymity and visual anonymity (Burkell 2006). Identity protection allows a real-world entity to remain unidentified, action anonymity enables a real-world entity to feel 'unknown' by their actions, and visual anonymity relates to a real-world entity having his or her appearance go unnoticed (Kambourakis 2014). Without anonymity, many online activities could become potentially risky to users, as users may become reluctant to share their thoughts openly for fear of stigma, punitive action and/or identification (Calvert and Benn 2015, Clement et al. 2015, Crisp and Griffiths 2014, Kambourakis 2014). Encouraging the disclosure of shameful symptoms and related behaviours could

be associated with positive outcomes (Hook and Andrews 2005, Smyth, Pennebaker and Arigo 2012). Therefore, the principle of anonymity could be considered for online interventions designed to support midwives and encourage them to speak openly.

Anonymity in the context of online interventions to support midwives in work-related psychological distress would mean that midwives would be able to experience full identity protection as they interact. This anonymity would be given with the intention of promoting positive therapeutic engagement and help seeking behaviours. This is significant, as the key to achieving a positive disclosure and a request for real world help may correlate with the relative amount of anonymity participants are afforded (Cooper 2004, Suler 2004).

Nevertheless, in an anonymous cyber space, obligation and accountability can be challenging to achieve where individual users cannot be identified. As the purpose of an online intervention is to support its users, it may be that an online intervention designed to support midwives would not seek to enforce or achieve accountability in this context, particularly given that other channels and processes exist to achieve accountability and uphold professional conduct. The concept of accountability is referred to as "taking responsibility for one's nursing judgments, actions, and omissions as they relate to life-long learning, maintaining competency, and upholding both quality patient care outcomes and standards of the profession while being answerable to those who are influenced by one's nursing practice" (Krautscheid 2014).

Amnesty

Amnesty arises as the corollary component of both confidentiality and anonymity. Amnesty is a period of forgiveness, where a crime or misdeed is forgiven, forgotten, or 'pardoned' (Brush et al. 2001, Weisman 1972). Amnesty in the context of an online support intervention would mean that midwives would be able to disclose an impairment or issue of concern, without fear of retribution or regulatory referral for the purpose of help seeking and disclosure. However, midwives have a professional duty to disclose any unsafe professional practices to their regulator. Should a midwife disclose something of concern online but fail to inform the regulator, and/or their employer, this could put patients at risk of further harm and damage the reputation of

the profession. As such, some might argue that an amnesty should not be used for midwives in any context.

For doctors and other professional groups in psychological distress, punitive blame cultures, poor working cultures, dysfunctional multidisciplinary teams and policies can prevent the disclosure of episodes of ill health, addiction and psychological distress (BMA Medical Ethics 2010, Brooks, Gerada and Chalder 2013, Cohen, Winstanley and Greene 2016, Moberly 2014, Taylor and Ramirez 2010). At times, a doctor's insight into their need for help and treatment can also be diminished (BMA Medical Ethics 2010). As midwives report similar levels of psychological distress and cultures within the workplace, this set of circumstances may be equally apparent in midwifery populations. This may in turn result in a reluctance to seek help or speak openly, which would paradoxically put patients at risk if a compromised healthcare professional continues to practise whilst they are unfit to do so (Radhakrishna 2015). As such, a therapeutic space which permits amnesty may encourage help seeking behaviours, positive disclosures, a sense of catharsis, real world behaviour change, reflection and emotional disclosure for midwives in distress (Shim, Cappella and Han 2011).

This process may also be mapped against the pathways disclosure model (Cooper 2004). This is because midwives may be able to speak anonymously, reflect upon their situation and move toward face-to-face disclosure in a place where they cannot be identified. Similarly, this process can be reflected within the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010). This is because the safety of not being identified may allow midwives to more openly appraise their experience of psychological distress, reflect and choose the most appropriate coping tools to promote help-seeking.

Nevertheless, amnesty agreements may provoke moral discomfort. The Council for Healthcare Regulatory Excellence requires the Nursing and Midwifery Council to be seen to protect the public as a primary aim before supporting the wellbeing of the workforce (Traynor et al. 2014). It is also recognised that amnesty agreements for healthcare professionals may not be favoured by patients and the public. This research looks to explore these ethical considerations in order to aid the process of ethical

decision making. Thus, a review of the literature in this regard will be required for the purpose of exploring the ethical considerations relating to the provision of confidentiality, anonymity and amnesty for midwives seeking support online.

Methods

Aims

This critical review of the literature aims to identify and explore the ethical considerations associated with the provision of confidentiality, anonymity and amnesty in online interventions to support midwives in work-related psychological distress. In doing so, and in line with critical review methodology, this critical review of the literature also aims to identify conceptual ideas in relation to the provision of confidentiality, anonymity and amnesty for midwives seeking psychological support in a complex online intervention (Grant and Booth 2009).

Rationale for using critical review methodology

Critical review methodology provides the researcher with an opportunity to 'take stock' in an attempt to resolve competing schools of thought, thus providing what has been described as a 'launch pad' for the development of new conceptual hypotheses (Grant and Booth 2009). This critical review explores some of the ethical considerations in relation to the development of an online intervention to support midwives in work-related psychological distress, which may require the principles of confidentiality, anonymity and amnesty. Such components may conflict with deeply entrenched values, and as such may hinder any further progress in developing this complex online intervention (Craig et al. 2008). Therefore, this critical review of the literature was required to construct new arguments and a way forward for further intervention development.

Initial scoping searches did not reveal any literature in relation to the principles of confidentiality, anonymity and amnesty in this context. This illustrated that minimal consideration has been given to this topic previously. As such, there was a need to incorporate a range of literature within this review including grey literature. Other review methods, such as systematic reviews can rely on trial data and effect sizes.

These factors are not appropriate to the question currently under study. Therefore, discursive accounts of the issues involved were pursued.

Search Strategy

This literature search took place between November the 2nd and December 23rd of 2015. Firstly, a background review of the literature was conducted, then a progressive search clarified the scope of the review. Subsequently a search for evidence was conducted. First, Academic Search Complete, Cumulative Index of Nursing and Allied Health Literature (CINAHL) with Full Text, MEDLINE and PsycINFO were searched concurrently for key papers of relevance. Subject headings were used where possible, as were related free text terms and proximity operators.

Concept mapping

Concept mapping enables the researcher to produce an interpretable pictorial view of interrelated ideas and concepts (Trochim and McLinden 2017). In order to add clarity to this search strategy, a concept map, which identifies how each term has been paired with other terms and concepts, and then used within concomitant searches is provided in figure 3.

Figure 3: Concept map of search terms

Search terms were chosen following a brief and scoping review of the literature in relation to midwives in work-related psychological distress, ethical considerations and online interventions. Search terms such as 'help seeking behaviour' and 'internet support groups' broadly relate to the 'coping strategies' component of the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010). The appraisal processes described by the revised transactional model of occupational stress and coping involves a global assessment of the individual's coping resources (Goh, Sawang and Oei 2010). As such, search terms like 'online communities' and 'anonymity on the internet' were used to identify coping resources available online.

As all search databases were searched concurrently, all search terms were confined to key words, rather than any specific headings, MeSH or subject terms relating to any one particular database. Using proximity operators and Boolean search operators such as 'and/or' is one way of linking terms and key concepts to achieve better precision when searching the literature (Boell and Cecez-Kecmanovic 2014). The search terms used here were related to the both the sub concepts and key concepts identified for this review, and were combined with the 'AND' Boolean operator or the 'OR' Boolean operator. Subsequently, available papers were found to relate to either anonymity, ethics, confidentiality 'OR' amnesty 'AND' online interventions 'AND' the midwifery workforce. The 9 stages of this search strategy in relation to the sub concepts and key concepts identified for this review are presented within table 1.

Table 1: Search Strategy for Critical Literature Review

Search Number	Search term (s)	Concept
S1	midwif* OR midwives	-Key concept
S2	online intervention*	-Key concept
S3	(S1 AND S2)	-Key concepts combined -Boolean operator 'AND'
S4	Amnesty	-Sub concept
S5	Confidentiality OR therapy	-Sub concepts combined -Boolean operator 'OR'
S6	anonymity OR stigma OR anonymity on the internet OR help seeking behaviour OR internet support groups OR online communities	-Sub concepts combined -Boolean operator 'OR'
S7	Ethics OR ethical issues OR ethics, online interventions OR Conduct, virtual communities OR social networks OR peer support interventions	-Sub concepts combined -Boolean operator 'OR'
S8	(S4 OR S5 OR S6 OR S7)	-All sub concepts combined -Boolean operator 'OR'
S9	(Search 3 AND Search 8)	-All key concepts combined with all sub concepts -Boolean operator 'AND'

Inclusion and exclusion criteria

All papers published in English from 1999 were considered for inclusion due to the fact that the majority of social networks (as they are defined in chapter one) began to emerge at approximately this time (Ellison 2007). All article types were considered for inclusion. Overall, 66 papers were retrieved, 6 exact duplicates were then removed, leaving 60 papers in total for review. Abstracts, titles and full texts were then scrutinised for their suitability for inclusion and relevance to the review's themes of confidentiality, anonymity and amnesty.

Studies had to refer to any ethical aspects which relate to either confidentiality, anonymity or amnesty within online interventions. This included studies which related to more general populations, where a reasonable portion of the midwifery population may be considered to reside. All types of literature and studies were considered for inclusion due to an anticipated low yield of relevant papers.

Selection and appraisal of documents

The 60 papers retrieved through this search strategy, and their reference lists were initially examined by the researcher. Paper titles and abstracts were screened for any relevance to the themes selected for this review. Articles that clearly did not meet the inclusion criteria were excluded, and any ambiguous papers were read more comprehensively through an iterative process of review. The remaining papers of relevance were then read in their entirety as the inclusion criteria were re-applied to inform final paper selections.

The relevance of each paper was judged by its ability to elucidate upon any aspect of either confidentiality, anonymity or amnesty in relation to online interventions designed to support healthcare professionals in distress. The rigor of each paper was judged from a 'fitness for purpose' perspective. Nine papers were chosen for inclusion. Others were omitted either due to their irrelevance to the subject matter, or due to their focus being upon adolescents or elite athletes, rather than comparable groups.

Data extraction, analysis and synthesis

Information was assimilated by annotation rather than 'extracting data'. Papers were examined for ideas relating to ethical dimensions of online interventions to support midwives in work-related psychological distress. The synthesis of findings was then related back to the underlying research question of the review.

This review takes a narrative approach. The findings of the review are presented as a synthesis of evidence. This synthesis explores the ethical considerations in relation to online interventions to support midwives in work-related psychological distress and the key themes of this review - confidentiality, anonymity and amnesty.

Results

Nine papers were selected following the approach outlined above. Papers included were discursive in nature (Damster and Williams 1999, Hair and Clark 2007, Harris and Birnbaum 2015, Humphreys and Winzelberg 2000), mixed method cohort studies (Shandley et al. 2010) content analyses (Im et al. 2005, Rier 2007a), one case study (Rier 2007b) and theoretical guidance papers (Sharkey et al. 2011, Williams 2012). None of the papers retrieved related to midwives or midwifery, therefore, themes of

salience in relation to those groups most like midwifery populations, including vulnerable groups comparable to midwives in psychological distress were extracted. Figure 4 outlines the process for paper selection. A summary of the papers selected for this review can be found in Table 2.

Figure 4. Critical Literature Review: Process of Paper Selection

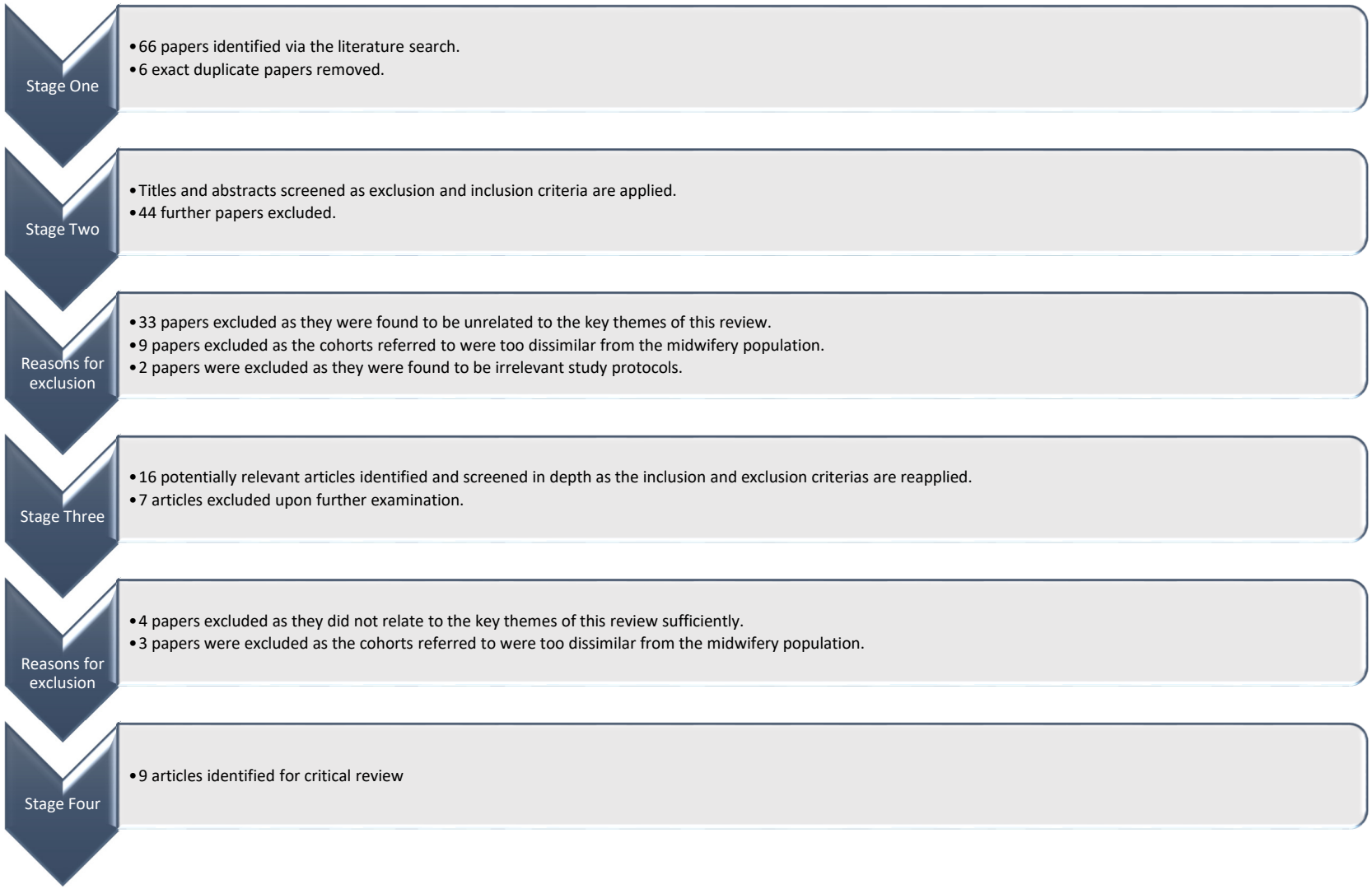


Table 2: Articles selected for inclusion: Critical Literature Review

Paper	Design	Sample	Aim, Design, analysis	Relevance and rigor	Themes extracted
(Damster and Williams 1999)	Discursive paper	N/A	To explore and identify threats to privacy and confidentiality in this use of the Internet.	- Very relevant to the application of other proposed interventions. - Issues highlighted are not academically tested.	- The implementation of registration. - Moderation of online chat rooms. - Unethical community site practices. - Balances between freedom of speech and accountability.
(Hair and Clark 2007)	Discursive paper	N/A	Contribute to the understanding of ethical decision-making processes within electronic communities.	-Relevant to the development of online services. -Relevant in understanding ethical decision making in the development of online communities and research.	-Exploring ethical decision making in the context of online communities. -synchronous versus asynchronous communication.
(Harris and Birnbaum 2015)	Discursive paper	N/A	To systematically review the ethical and legal challenges as well as benefits of online counselling.	-Relevant to the exploration of anonymity online. -Relevant to the exploration of risk during mental health crises.	- Legal Considerations and Potential Ethical Tensions. -Benefits of online support. - Accessibility, anonymity, technology, asynchronous communication, online security, informed consent, and the challenges of licensure, liability, and regulation.
(Humphreys and Winzelberg 2000)	Discursive paper	N/A	-To report initial strategies and guidelines for ethical behaviour in Internet-based groups. - To explore ethical liabilities and responsibilities for the professional participant.	- Very relevant in the development of safeguarding strategies to mitigate risk.	- Online confessions. -Risks associated with peer communication online. -Suggestions for professional psychologists using support groups.
(Shandley et al. 2010)	Cohort Study	154 participants (116 females; 38 males)	To evaluate the effectivity of Reach Out Central (ROC), an online gaming program designed to support the mental health of young people.	-Limitation of open trial methodology -Small number of male participants -Intervention designed for younger audience -Relevance to subject matter lies in the discussion of the preferences of young people when using an online intervention designed to support them.	-Online communication preferences. -The value of Internet interventions as a tool. -Ethical considerations in working with vulnerable people online.
(Im et al. 2005)	Content analysis	Internet Cancer Support Groups (ICSGs)	To view ICSGs in terms of how they provide a research setting and/or data-collection method that meet 5 evaluation criteria.	-Relevant in that the paper highlights potential ethical issues within other support groups.	- Confidentiality and anonymity issues. -Ethical use of Disclaimers. -Ethical use of Privacy Policies.
(Rier 2007a)	Content analysis	The primary data set included 16 lists hosted on seven different Internet sites. (message boards)	To examine how, on Internet HIV/AIDS support groups, participants discuss the ethics of disclosing HIV seropositivity to partners.	-Posters cannot be matched to their online personae. -Relevance to subject matter lies in the discussion of sensitive disclosures online.	-Problems associated with disclosure and help seeking. -Privacy issues. -Lying online.
(Rier 2007b)	Case study	A single discussion 'thread' in which group pressure persuades a fellow-participant to modify their behaviour.	To demonstrate the impact of group discussions, and their potential as agents of change.	- Relevant in the exploration of potential risks and opportunities for online discussion. - Relevant in the exploration of disclosure.	- 'Flaming' behaviour online. -Influential behaviours of online groups.
(Sharkey et al. 2011)	Lessons Learnt – Discursive paper	N/A	To present solutions and guidance for researchers in the development of online interventions.	- Relevance to subject matter lies in the discussion of ethical issues.	-Anonymity. -Appropriate Moderation techniques. -Lessons and guidance. -Prioritising anonymity.

Synthesis of results

To synthesise the data, any inferences or references to the key ethical themes of this review - confidentiality, anonymity and amnesty were annotated through an iterative process of re-examination. As a number of papers retrieved did not describe their methodologies in great detail, data extraction remained limited to principle findings and theoretical concepts.

Confidentiality

Damster and Williams indicate that health professionals should be suspicious of any attempts to erode confidentiality, whether in the medical or other sectors, as it is worthy of protection, not just for the good of individuals, but also for the good of society as a whole (Damster and Williams 1999). This discursive paper goes on to describe the medical ethics model, where a health professional will always strive to respect the confidentiality of information entrusted to [them] by the patient. In keeping with this model, they also state that it is the patient who has the right to decide who to share their information with, rather than the healthcare professional. Additionally, without the provision of confidentiality, Humphreys and colleagues assert that any ethical responsibilities associated with a psychotherapeutic relationship cannot be invoked (Humphreys and Winzelberg 2000).

Hair and Clark explore the ethical challenges of preserving the confidentiality and anonymity of those engaging within virtual communities (2007). They purport that a relatively rapid and synchronous form of communication such as one to one instant messaging, may give a user an increased sense of confidentiality. Harris and Birnbaum systematically review the ethical and legal challenges of delivering therapies to vulnerable people online (Harris and Birnbaum 2015). Conversely, they highlight that asynchronous communication may enable deeper reflection, increasing self-awareness and self-expression. In any case, Humphreys and colleagues suggest that all online users may at some point become confused as to which contributions may be confidential, group based, open or closed in nature (Humphreys and Winzelberg 2000).

Virtual communities value the free speech they uphold through the provision of confidentiality highly (Damster and Williams 1999). Damster and Williams go on to

report that however ‘outrageous’ this free speech may become, in the interest of maintaining a supportive online community, the moderation of discussions is seen by many as the preferred management option (Damster and Williams 1999). Hair and Clark maintain that users who choose to forfeit their own confidentiality must be made aware of any potential repercussions (Hair and Clark 2007).

As Shandley and colleagues explore the efficacy of a youth-focused online intervention, they highlight that some young people may not access effective help because they fear that their confidentiality might be broken (Shandley et al. 2010). They go on to share how an online intervention can effectively promote help seeking and support the health and wellbeing of younger people, especially when gamification techniques are employed. Within their online intervention, ‘Reach Out Central’, participants are encouraged to interact as they adopt the persona of a pre-determined character or avatar rather than exposing any real-world details about themselves. Each user or ‘player’ is assigned a coach to act as a guide and mentor as the user navigates their way through a series of interactions designed to remedy and explore episodes of psychological distress. Their results indicate that as young people engage with an online intervention in this way, they may experience a reduction in the use of maladaptive coping behaviours, increased resilience and adopt healthier coping behaviours (Shandley et al. 2010). Participation in this sense may follow the pathways disclosure model, as users are encouraged to engage and interact (Cooper 2004). As the user explores their own episodes of psychological distress, they may also be appraising their experiences in line with the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010).

In learning lessons from a self-harm discussion forum study ‘Sharp Talk’, Sharkey and colleagues emphasise that vulnerable users of online interventions may desire confidentiality and anonymity as a condition of use (Sharkey et al. 2011). Within their protocols, they ensured that anything that may compromise a member's anonymity or confidentiality would be prohibited and removed accordingly. They also encouraged users to be known only by a chosen unique username or ‘pseudonym’ to ensure that confidentiality was maintained (Sharkey et al. 2011). In order to mitigate the risk of exposure in internet-based groups Humphreys and colleagues also propose that

professionals who access support groups in the role of a peer, should do so with the use of a pseudonym (2000). Yet when users of online interventions adopt pseudonyms or alternate identities as they converse within virtual communities, Damster and Williams assert that they may be unable to entirely hide behind either anonymity or confidentiality (Damster and Williams 1999). This is because over time, users come to know one another and recognise and identify the behavioral patterns in those individuals who interact on a regular basis.

Through their analysis of Internet Cancer Support Groups, Im and colleagues express concern that some online interventions fail to ensure and safeguard the confidentiality and anonymity of their members as they interact (Im et al. 2005). To enforce confidentiality, Damster and Williams highlight the need to consider the implementation of disclaimers, privacy statements and guidance when looking to facilitate online interventions (Damster and Williams 1999). It was identified by Im and colleagues that many websites use the terms “site disclaimer” or “privacy” to describe user information on “confidentiality” issues (Im et al. 2005). However, very few of these statements were aimed at preserving the confidentiality and anonymity of members. Instead, these statements tended to state that the online facilities were not to replace professional treatment and were to be used only for educational purposes. Throughout this analysis of online support groups, only one site out of 546 was found to warn its users not to post anything of a confidential nature (Im et al. 2005).

Fundamentally, when confidentiality is assured by an online intervention there are some immediate technical matters to consider. Harris and Birnbaum highlight the need to regularly update online security software, as the provision of online support remains an ever-evolving field (Harris and Birnbaum 2015). They also describe how breaches in online security may occur, as unauthorised individuals intercept wireless signals and compromise what is thought to be confidential information. Hair and Clark add that with the existence of search engines, archiving software and the retrieval of verbatim quotes, seemingly private and deleted posts may be recorded technically, without user knowledge (Hair and Clark 2007).

The provision of online confidentiality also has practical implications where the collection and tracking of data would usually occur through the use of website 'cookies' and mailing lists. In this regard, Damster and Williams refer to the difficulties in obtaining consent for obtaining and sharing personal data without invading the provision of confidentiality (Damster and Williams 1999). In order to address some of these ethical considerations, Sharkey, Humphreys and colleagues suggested that their participants created new email accounts upon joining the online community, as well as unique pseudonyms (Humphreys and Winzelberg 2000, Sharkey et al. 2011).

Anonymity

Damster and Williams report that the internet has a long-standing legacy and reputation for facilitating anonymity (Damster and Williams 1999). Sharkey and colleagues concur with this statement, and report how young people who self-harm expect anonymity and enjoy its protective nature (Sharkey et al. 2011). Harris and Birnbaum also highlight the safety that anonymity can offer those seeking support, as it more readily allows for open and disinhibited disclosures (Harris and Birnbaum 2015). In this case, they suppose that an online intervention may be the safest place to discuss the most challenging and emotional issues. Yet they also report that anonymity can encourage roleplay and misrepresentation. Damster and Williams agree by suggesting that anonymous communication can encourage verbal violence (Damster and Williams 1999). Nevertheless, during a self-harm discussion forum study, Sharkey and colleagues stressed that without anonymity, online users of interventions can be reluctant to engage (Sharkey et al. 2011). As a result, this particular study rejected any alternatives to providing anonymity as discouraging to potential participants.

Reir explores the ethical dynamics of an HIV/AIDS online support group, and the moral suasions of its members through two content analyses (Rier 2007a, Rier 2007b). Anonymity is of great importance within this online support group, as group members often wanted to conceal the nature of their illness and, in some instances, their homosexuality. Face-to-face disclosures within this population are sometimes avoided, as disclosing their HIV status is often tantamount to admitting stigmatised behaviours or lifestyle choices. Within this online group, Rier describes how the group displayed an authentic mix of opinion, yet the most common position regarding

disclosure ethics is full disclosure (Rier 2007b). As members of the group admit to disclosure avoidance, other members of the community make frequent and persuasive calls for disclosure. Ultimately, the provision of anonymity within this group enabled honest moral debates, open disclosures and personal reflections within the group (Rier 2007b).

Such moral suasions may evoke the pathways disclosure model, as users begin to participate in discussion, and then go on toward face-to-face disclosure as a result (Cooper 2004). Equally, moral suasions may also evoke the appraisal and re-appraisal of an event in line with the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010).

Reir goes on to explore how these frequent calls for disclosure within the same HIV/AIDS online support group may translate into moral suasion within its community via a second content analysis of online group discussion (Rier 2007a). As in the example given, one member openly disclosed how they had been engaging frequently in unprotected sex without disclosing their HIV status. Following a series of comments which debated this as a moral issue, the member reflected upon their behaviour and decided to then disclose their acts and name those now at risk anonymously via their physician. The paper then goes on to highlight other instances where a group member is initially unsure about what to do but is willing to make anonymous disclosures online in order to seek advice. Some other individual members under scrutiny are described as initially resisting the dominant discourse, but then eventually become prepared to declare real world behaviour change either anonymously or otherwise, having been swayed by group discussion (Rier 2007a).

Online anonymity is important for those who wish to conceal any individual circumstances or behaviours they consider to be shameful (Rier 2007b). Humphreys and colleagues recognise that healthcare professionals sometimes participate in Internet-based groups anonymously to address their own psychological and behavioural problems (Humphreys and Winzelberg 2000). Humphreys and colleagues recommend that the healthcare professional should maintain clear and consistent role definition as they switch between the roles of both therapist and casual member of

the online community (2000). Rier suggests that online participants can regard positive and moral persuasion as part of their ethical responsibilities, duty and function(Rier 2007a). Conversely, Sharkey and colleagues purport that those who are vulnerable online, may be at risk of coercion rather than positive influence (Sharkey et al. 2011). Hair and Clark add that should names be associated with 'public' posts online, unsolicited contact and harassment may occur outside of the virtual community space (Hair and Clark 2007). The use of pseudonyms is again suggested in order to uphold ethical practice in this case.

When users refuse to disclose misdeeds in a real-world context, 'flaming' behaviours can also occur in protest to any perceived injustice online (Rier 2007b). In seeking a balance between anonymity and accountability in online discourse, Damster and Williams (1999) suggest a compromise of requiring users to initially register their identity with a moderator as they join the virtual community. Moderators may be health professionals or peer group members. The user may then choose to use their real name, or a pseudonym for any interactions they then make. In this case, anonymity remains a choice, and only the moderator can delete, report and remove inappropriate content or users. Additionally, Hair and Clark maintain that it must be decided whether the online community offers anonymity to all members, just primary posters, certain individuals or only those who respond to open posts (Hair and Clark 2007).

Within the findings of an online forum study, Sharkey and colleagues reported that moderators were needed to ensure that anonymous online safety can be maintained, and a strong consensus that moderators ought to get involved in providing support (Sharkey et al. 2011). Contrary to this finding, Humphreys and colleagues recommend that health professionals should not imply a therapeutic relationship online, when the ethical responsibilities in doing so cannot be met, as may be the case where users remain anonymous online (Humphreys and Winzelberg 2000). In order to support online moderators in their task, Sharkey and colleagues suggest that online interventions issue forum rules and employ private messaging facilities, links to other online support, a discussion room for forum moderators and a 'report' button for users (Sharkey et al. 2011).

It was suggested by Humphreys and colleagues that, should an online intervention allow individuals to anonymously seek support, a potentially important avenue of assistance may be opened to professionals who need help but fear being identified (Humphreys and Winzelberg 2000). Yet they also identify that concerns may arise where users remain anonymous in a time of crisis, as there lies a consequent inability to intervene. Nevertheless, some online interventions such as 'Sharp Talk', explored by Sharkey and colleagues have rejected the alternatives to total anonymity, as they have placed more value upon encouraged participation and the protective nature of anonymity in pursuit of a utilitarian approach to support (Sharkey et al. 2011). Yet should the focus of conversation turn toward suicidal thoughts, or self-harm, Sharkey and colleagues also highlight that this may increase the vulnerability of users (Sharkey et al. 2011).

Harris and Birnbaum (Harris and Birnbaum 2015) assert that online interventions provide a natural and therapeutic sense of anonymity for users, and explore how this conflicts with the need to verify a user's identity. They go on to state that it is difficult, if not impossible, to acquire accurate and valid information on a user's identity, and question whether this acquisition may be of benefit to the user in any event. In the context of extreme risk and serious clinical issues, they also recognise the ethical obligations and duties of care in relation to the need to report those at risk for appropriate intervention (Harris and Birnbaum 2015). In these cases, they propose that face-to-face services may be swifter in providing immediate emergency care. Additionally, some methods of online support may not be able to express timely, and much needed, empathy to those in severe distress. In order to improve upon the lack of demonstrable empathy to those in distress online, the use of emoticons is suggested (Harris and Birnbaum 2015).

Communication on the Internet can make issues of privacy, confidentiality, and personal relationships confusing (Humphreys and Winzelberg 2000). When exploring the therapeutic properties of an online community, Damster and Williams (1999) highlight the conflicts between promoting the principles of anonymity and confidentiality, whilst also encouraging openness and freedom and ensuring the safety of participants. Harris and Birnbaum (2015) highlight the legal and ethical dilemmas

where face-to-face contact remains absent and the provision of anonymity is upheld. They draw attention towards the inability to assert clinical judgement, gain informed consent, report accurate concerns in a timely manner, and establish the mental or physical capacity of the user online.

Nevertheless, Harris and Birnbaum insist that online interventions must always conform to duty-to-report or duty-to-protect statutes (Harris and Birnbaum 2015). However, Humphreys and colleagues purport that because online users may come from a broad geographical area, it would be unlikely that any ethical responsibilities in the event of an emergency would be able to be executed completely in any case (Humphreys and Winzelberg 2000). In addition to this, Harris and Birnbaum assert that any statues may vary from place to place, and that the online user may reside in a separate jurisdiction to that of the online community. In order to mitigate risk, Harris and Birnbaum endorse the creation of emergency contact lists and details of supportive services within the user's community to enable swift self-referral to localised face-to-face support during emergencies (Harris and Birnbaum 2015).

Amnesty

Hair and Clark describe both confidentially and anonymity as the 'starting point' for defining themes to be interpreted as 'ethical canons' or 'codes' (Hair and Clark 2007). Yet with total confidentiality and anonymity in place, their corollary, amnesty becomes inevitable. Within the retrieved literature there were no explicit references to amnesties within online interventions. However, the concept of amnesty became implicit within some of the papers, as some described the importance of total anonymity and/or confidentiality (Damster and Williams 1999, Harris and Birnbaum 2015, Humphreys and Winzelberg 2000, Im et al. 2005, Sharkey et al. 2011).

In the online discussion forums of an HIV/AIDS support group, one episode of amnesty is highlighted where an online user modifies their undesirable offline behaviour as a result of anonymous online disclosure (Rier 2007a). This was done with the understanding that there would be no negative consequences in doing so. In this case, the user experienced the support of the online community, the development of insight and a real-world behaviour change. This mirrors the pathways disclosure model, where

a user begins by anonymously disclosing online, and then subsequently showing leadership in changing their behaviour and 'recovering' as a result of online support (Cooper 2004). Equally, this process can be applied to the revised transactional model of occupational stress and coping, as the user appraises, re-appraises and then copes with their stressful situation (Goh, Sawang and Oei 2010).

To illustrate how online interventions may present extreme ethical dilemmas, Humphreys and colleagues (2000) describe a case study in which the father of a five-year-old girl confesses to her murder within an online support group. Within this scenario, some members of the community reported the crime to the authorities, and yet the healthcare professionals involved did not. In effect, the healthcare professionals respected the confidentiality of the disclosure and afforded the perpetrator amnesty. This ignited debate as to what the purpose, roles and responsibilities of an online support group may be, although no conclusions are presented in this case.

Some users within online communities have been seen to assume the role of a moral agent, and attempt to influence fellow users to exercise 'responsibility' by disclosing and acting upon their compromising predicaments to the appropriate authorities (Rier 2007b). In this sense, users of an online intervention look to guide both the online and offline behaviours of other users in order to achieve the most desirable outcome. Rier highlights these episodes during online egalitarian moral debates, where an inherent amnesty enabled those in distress to be persuaded to 'do the right thing' whilst maintaining a private identity. Reir concludes by suggesting that such online communities are a mechanism for engaging in support and moral suasion, where users seek help and enforce what the community defines as 'ethical conduct' within a real-world scenario (Rier 2007b). A process like this would adhere to the pathways disclosure model as users are persuaded to make face-to-face disclosures via participation (Cooper 2004). Similarly, these persuasions may force the processes of appraisal and coping as they have been described in the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010).

Discussion

This critical review has identified nine papers that explore key themes of confidentiality, anonymity and amnesty in relation to online interventions designed to provide support. The provision of confidentiality online is highly valued by those seeking online support. Confidentiality is particularly important in promoting help-seeking, with some online users suggesting that they may not engage in help-seeking without it. The protective nature of anonymity can also encourage more open disclosures and engagement from online users. Any amnesties provided can also encourage more open disclosures and help seeking where there are no negative consequences to declaring any individual circumstances or behaviours which a user may consider to be shameful. Following such disclosures, online users can also be persuaded to change their real-world behaviours to fall in line with what the community defines as 'ethical conduct' within a real-world scenario. Some of these findings have also been mapped against the pathway to disclosures model, where anonymous participation online can lead to face-to-face disclosures and help seeking offline (Cooper 2004). Additionally, the revised transactional model of occupational stress and coping has been followed where online users have appraised, re-appraised and then applied coping strategies to their situation (Goh, Sawang and Oei 2010).

However, ethical dilemmas remain where there is a legal duty to report, disclose and act upon concerns which may put both the online user (whether a midwife user, or public user) and the public at risk. Ethical considerations are also highlighted, as obligations to ensure that appropriate and real-world care is given to the online user may not be met should both anonymity and confidentiality be guaranteed in full.

There are a range of ethical considerations to consider in the development of online interventions to support midwives. However, in order to develop insights into the influence of context, these findings must also be mapped against ethical and legal considerations.

Legal and ethical considerations associated with online interventions

Developers of online interventions designed to support those in distress can follow the e-Health Code of Ethics, which ensures that people worldwide can confidently and

with full understanding of known risks realise the potential of the Internet in managing their own health and the health of those in their care (e-Health Ethics Initiative 2000). However, this guidance does not cover the development of unique online sources for the provision of support to healthcare professionals (Vayena, Mastroianni and Kahn 2012). Midwives in the United Kingdom must maintain public confidence in the nursing professions and uphold standards and professional behaviour (The Nursing and Midwifery Council (NMC) 2015). These midwives have a duty to escalate any professional concerns pertaining to both themselves and their colleagues, yet if a concern arises within an online platform, a midwife may be left unable to identify the perpetrator or escalate concerns.

Concerns relating to patients

Midwives in the United Kingdom are duty bound to ensure that any support that they give to colleagues must not compromise or be at the expense of patient or public safety (The Nursing and Midwifery Council (NMC) 2015). Midwives in distress may disclose episodes of impairment, medical error or display unprofessional behaviour within an online intervention designed to support them. These episodes of impairment may put patients at immediate risk of harm, and may ordinarily prompt a referral to the regulators and further investigation for the immediate protection of the public. Yet the issues highlighted here may prompt the question as to whether a midwife in distress has the same rights to confidentiality as the 'typical' online user in distress.

In relying on the process of moral peer review and culture setting, online interventions may sacrifice immediate public protection in favour of wider and more sustainable advances in public safety and protection. Midwives have a legal obligation and duty of care to maintain the confidentiality of their patients in line with professional codes of conduct. However, in the context of a confidential online intervention, issues surrounding patient harm, neglect and patient risk may become apparent, without the assurance that an appropriate real-world response has been actioned. As such, the wellbeing of vulnerable patients could be placed at risk in favour of supporting the midwife in immediate distress.

Concerns relating to midwives

Midwives who seek out an online platform for support may be psychologically vulnerable. Elsewhere, it has been argued that those providing online interventions should know the location and identity of those users at risk of suicide in the event of a psychological emergency (Rummell and Joyce 2010). Yet this may not be possible for an online intervention offering total anonymity to its users. Despite this, it has also been argued that the benefits of providing online therapies far outweigh these risks (Ravis 2007). Moreover, the challenge to locate a suicidal online user has been found to be no more difficult than locating an 'at risk' individual engaging with telephone therapy (Rochlen, Zack and Speyer 2004). As such, in signposting the anonymous midwives who engage with an online platform towards outside sources of support, an online intervention may offer a portal for knowledge exchange and ongoing care in the absence of immediate professional support.

Although the literature rarely highlights the legal considerations of providing support via online interventions, midwives currently have a legal obligation and duty of care to maintain the confidentiality of colleagues in line with their professional codes of conduct. However, in the context of online interventions, the legal regulations that apply to online interaction may mean that the dissemination of concerns to any third party becomes prohibited (Dever Fitzgerald et al. 2010). Additionally, as internet access becomes global, users and facilitators will need to consider their legal jurisdiction and authority to practice in areas beyond both their professional or geographical territory.

It is also of note that anonymity may become less appropriate for serious cases, where there may be an ethical obligation or duty to report a midwife for immediate preventative action. In these cases, decision makers and registered clinicians are reminded of the requirement to follow duty to report and protect statutes. These questions, related to jurisdictional challenges may require further dialogue with professional associations and regulatory bodies (Harris and Birnbaum 2015).

Legal and ethical issues endure where there remains an inability to assert clinical judgement, gain informed consent and establish mental capacity whilst users remain

unidentifiable online (Harris and Birnbaum 2015). In order to address legal and ethical considerations, some online interventions have used disclaimers and privacy statements as a means of either protecting the intervention against its own accountabilities or to instruct its users upon how they may or may not expect their privacy to be upheld (Im et al. 2005). Legal obligations vary geographically and nationally, from one country to the next. In England for example, the law is the same whether you work in the south of England or the north of England, yet in many states of America, there may be conflicting legal obligations in force. In this context, a global online intervention for midwives could establish its own codes of conduct and level of accountability, guided by the level of accountability set by regulators around the world.

Facilitators of an online intervention designed to support midwives could be specialist healthcare professionals or individual midwives proficient in restorative supervision and peer support. However, these professionals would still be legally obligated to report impaired midwives to their regulatory body. As such, strong privacy statements and usage policy agreements may be required.

Confidentiality, anonymity and amnesty

If online interventions were developed to support midwives in psychological distress, there lies the risk of non-disclosure of poor clinical practice, as midwives may look to seek anonymous support in order to avoid accountability. Without being able to identify the users of an online intervention, no real-world referrals or accountability can reliably be pursued. Therefore, it may be that society is only willing to permit an amnesty in the cases of relatively trivial matters, rather than in severe cases. However, any attempt to measure the degrees of severity may result in some episodes not being perceived as objectively severe in nature.

For an online intervention to support midwives, it will be important to decide which control measures should be employed to discourage undesirable behaviours such as those which may undermine public confidence in the profession. The online inhibition effect in these cases can be ‘toxic’ (Allen et al. 2016). Other online communities hold a ‘real name’ policy in order to hold users to account, however these have previously

inhibited the development of productive online communities (Cho and Kwon 2015). In this case, midwives who are reluctant to speak openly may not engage with an intervention where they may be further held to account.

Moderators of online support groups have noted that trust in confidentiality and anonymity is an essential part of maintaining a successful health-related online support group (Coulson and Shaw 2013, Frost, Vermeulen and Beekers 2014, Kauer, Mangan and Sanci 2014). The provision of anonymity and confidentiality may also appeal to those who would ordinarily feel unable to disclose a sensitive issue. As confidentiality and anonymity have been cited as two of the most important features of an online peer support forum, these two principles may be key features in online interventions to support midwives in work-related psychological distress (Horgan, McCarthy and Sweeney 2013). To mitigate risk, users may require ethical guidance in relation to the maintenance of confidentiality in the context of any work-related discussions.

When a user is grappling with a moral issue, they may be more likely to disclose in an online environment that allows for anonymity for the purpose of help seeking. In an online environment, where morality can be debated, users can also be persuaded by the community to modify their behaviours and eventually make real world disclosures. In this context, an online intervention may have the ability to change any reticent behaviour seen in some midwives, which would in turn aid help seeking and increase public protection. As such, the serious risks involved with the provision of amnesty online may be mitigated somewhat by the possibility of encouraging a larger number of midwives to seek help, modify any risky behaviours and move towards a real-world disclosure and self-referral in line with the pathways disclosure model (Cooper 2004).

Ethical decision making

Ethicists are largely concerned with doing right, following the principles of justice, beneficence through identifying risk; and preventing harm through protecting privacy, being honest, obtaining consent and respecting a person's inherent value as a human being (Hair and Clark 2007). Ethical decision making within the creation of electronic communities can be derived from two main philosophical approaches. These have

been described by Hair and Clark as deontology, which is focussed upon using codes of conduct in decision making, and teleontology, which advocates achieving the greatest good for the greatest number of people (Hair and Clark 2007). As such, developers of online communities must balance the effects upon the entire community with the individual risks that may arise (Hair and Clark 2007).

It has been suggested that individuals progress through three different levels as they make moral judgements: (a) the pre-conventional level, when moral decisions are based on rewards and punishments and obedience to authority; (b) the conventional level, when individuals recognise societal laws and rules and are concerned regarding collective welfare and (c) the post-conventional level, when moral decisions are based on internalised moral values and abstract principles (Kohlberg 1981). At the peak stage of moral decision development, a concern for wider social justice and human rights becomes evident (Kohlberg 1981).

Ethical dilemmas such as those presented within this chapter are often complex and ambiguous. Many ethical decision-making frameworks exist to assist nursing populations in making ethical choices (Mallari, Grace and Joseph 2016). These often focus upon the alleviation of suffering, responsibilities to the public and professional accountability, where the nurse or midwife's primary commitment is to the patient. Midwives who use an online intervention could be analogous to patient users if the work of Damster and Williams is applied to the present issue (Damster and Williams 1999). In any case, within these ethical frameworks there is also a focus on personal health and wellbeing, collegial support, competency maintenance and professional growth, as it is widely recognised that both patients and the public are safest whilst nurses and midwives remain in optimal mental and physical health.

Generally, ethical decision-making within the nursing professions leans toward a favourable risk-benefit ratio (Mallari, Grace and Joseph 2016, Peter 2006). To expand upon the descriptions given by Hair and Clark (2007), teleological approaches focus upon the final effects of human action (Noble 1967). Conversely, the wider philosophical approach of utilitarianism is founded upon the premise that an action is ethical if the outcomes of the action lead to the greatest benefits for society at large

with the fewest possible negative consequences (Beuachamp and Bowie 1983). In this context, society may gain the greatest benefit from supporting the midwifery workforce. Yet if midwives are to be supported via an online intervention, society may also have to accept that midwives may need confidentiality, anonymity and amnesty in order to seek help.

Strengths and limitations

Usually, conceptual ideas develop through a process of evolution, with each successive change adding to its predecessors. Yet this critical review methodology has provided an opportunity to reflect on previous ideas, and present a new supposition in relation to a previously unexplored topic of interest. This supposition is that midwives should be granted the provision of confidentiality, anonymity and amnesty online so that they may disclose episodes of impairment or issues of concern, without fear of retribution or regulatory referral. Yet there may still be a need to explore what internal mechanisms may be acceptable or preferable for this type of intervention, for example, in moderating the content of such an online intervention.

Critical reviews are not systematic. Additionally, there is no formal requirement to present methods of the search, synthesis and analysis explicitly (Grant and Booth 2009). This lack of formal clarity may therefore obstruct the replication of this review. Additionally, within any critical review, the emphasis is on the conceptual contribution of each item of included literature, rather than on formal quality assessment (Grant and Booth 2009).

Unfortunately, this review did not retrieve any papers that directly addressed the subject of midwives using online interventions, therefore it has been necessary to extrapolate from other groups such as those experiencing self-harm or HIV/AIDS to midwives. Also, whilst this a review has synthesised the literature in relation to several ethical considerations, the interpretative elements are unavoidably subjective and therefore any conclusions made can only be considered as a foundation for further review.

Conclusions

The principles of confidentiality, anonymity and amnesty online may appeal to midwives in work-related psychological distress who feel stigmatised, are pressured for time, fear retribution and/or frequently access the internet (Berger, Wagner and Baker 2005, Burns et al. 2010, Currie and Richens 2009). However, in deciding whether this provision may be ethically justifiable, online intervention providers must weigh up the risk/benefit ratio to both patients, midwives and the wider general public (Watson, Jones and Burns 2007). This chapter has discussed and characterised the most morally justifiable and ethical decision from a utilitarian perspective as, the greatest good for the greatest number (Shaw and Post 1993).

Online interventions may offer an opportunity to improve the help seeking behaviours, rates of disclosure, and provision of therapeutic support of midwifery populations when they allow for confidentiality, anonymity and amnesty (Crisp and Griffiths 2014, Haemmerli, Znoj and Berger 2010, Kenwright et al. 2004, Wootton et al. 2011). The consequences of failing to adequately support midwives in work-related psychological distress may mean that the maternity services experience a less compassionate workforce, reduced productivity, reduced standards of care and increased rates of error (Chana, Kennedy and Chessell 2015, Currie and Richens 2009, Dasan et al. 2015, Mastracci and Hsieh 2016, The Royal College of Physicians 2015). As such, this chapter argues that the morally justifiable decision may be that providing an opportunity for midwives to manage their emotional fears, improve their emotional wellbeing, optimism, mental health literacy and openly engage with emotional support via an online intervention may outweigh any potentially damaging processes (Mo and Coulson 2014).

International codes of conduct promote that midwives should ‘support and sustain each other in their professional roles, and actively nurture their own and others’ sense of self-worth’ (International Confederation of Midwives (ICM) 2014). The Nursing and Midwifery Council also recognise the importance of the need for their registrants to ‘be supportive of colleagues who are encountering health or performance problems’ (The Nursing and Midwifery Council (NMC) 2015). Yet the caveat associated with this

support is that it must never compromise or be at the expense of patient or public safety. This chapter argues that in effectively supporting midwives anonymously online, both patients and the public may be protected via more sustainable means. As such, the benefits of allowing anonymous free speech for the purpose of supporting midwives in distress may outweigh the need for the immediate identification and reporting of episodes of impairment for the purpose of instant accountability.

The risks associated with providing online interventions to support midwives in psychological distress may be somewhat mitigated by the ethos of the support group, which may preclude confrontations' over risky and/or immoral behaviour (Klitzman and Bayer 2003). Users may also embrace a collective philosophy that promotes adages such as, 'honesty is the best policy' and 'do unto others' (Rier 2007b). Therefore, in influencing positive group behaviours, midwives may exercise their own responsibilities to disclose issues to regulatory bodies where appropriate with the support of others in line with the pathways disclosure model (Cooper 2004). This chapter proposes this to be the preferred outcome for online support interventions, where midwives receive support and yet moral accountability is respected.

Additionally, in line with other populations accessing online interventions for support and practical advice, midwives may not necessarily reject their existing moral frameworks at the same time (Rier 2007b). Therefore, the morally justifiable and ethical decision, promoting the greatest good for the greatest number may be to permit anonymity, confidentiality and amnesty. Midwives may need to be able to disclose an impairment or issue of concern, without fear of retribution or regulatory referral for the purpose of help seeking and disclosure. This chapter argues that midwives should be granted the provision of confidentiality, anonymity and amnesty online for this purpose. Such disclosures may in turn promote help seeking, behaviour change and recovery from work-related psychological distress in line with the pathways disclosure model (Cooper 2004). This process may also engage the revised transactional model of occupational stress and coping, as in the examples provided, online users are able to re-appraise their experiences and coping strategies (Goh, Sawang and Oei 2010).

This chapter has explored the ethical, legal and moral issues associated with the development of online interventions designed to support midwives in work-related psychological distress. Although this research argues that the principles of confidentiality, anonymity and amnesty should be upheld in the pursuit of the greatest benefit for the greatest number of people, there is also call for a further dialogue in relation to this matter in pursuit of robust ethical stability. Subsequently, it will be important to explore whether interventions designed to support midwives in work-related psychological distress exist, how midwives may experience them, and what outcomes they produce, so that further development decisions can be made.

Chapter Three: A systematic mixed-methods review of interventions, and the outcomes and experiences associated with them for midwives and student midwives in work-related psychological distress

Whilst chapter two has explored some of the ethical issues in relation to the provision of an online intervention, it is also important to explore the existing evidence in relation to interventions designed to support midwives in work-related psychological distress. This evidence is important as it may both guide the direction of future research in this area and enable new interventions to incorporate the most effective components into their design. The MRC framework for developing complex interventions suggests that such information ideally be collated via a systematic review (Craig et al. 2008). For this task, it would be prudent to explore how any existing interventions in this area work.

It is not yet known how many interventions are available and designed to support midwives and/or student midwives in work-related psychological distress, what outcomes are associated with these interventions, and how users experience them. To achieve this, a systematic mixed-methods review was performed with the main objectives being to identify interventions designed to support midwives and/or student midwives in work-related psychological distress, and gather evidence in relation to the outcomes and experiences associated with their use. This research has been published elsewhere (Pezaro, Clyne and Fulton 2017). The publication associated with this research can be found in appendix 1, and can be checked against the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines checklist (Moher et al. 2009).

Rationale

Although recent healthcare strategies recognise the need to act upon evidence of high levels of stress in the healthcare workforce and improve the working lives of staff (Ham, Berwick and Dixon 2016, West et al. 2015), there is little known about

interventions designed for midwives and/or student midwives (Austin, Smythe and Jull 2014, Strobl et al. 2014).

A more comprehensive understanding of interventions designed to support midwives and/or student midwives in work-related psychological distress is required to establish a strong foundation for further research and the development of the most effective interventions. Previous reviews of this type have not included either midwives and/or student midwives as an isolated population sample (Awa, Plaumann and Walter 2010, Guillaumie, Boiral and Champagne 2016, Murray, Murray and Donnelly 2016, Regehr et al. 2014, Romppanen and Häggman-Laitila 2016, Ruotsalainen et al. 2015). Therefore, this review uses the segregated systematic mixed-methods review approach to examine the literature on interventions designed to support midwives and/or student midwives in work-related psychological distress.

Objectives

The objectives of this review are to identify any interventions that have been designed to support midwives and/or student midwives as a population in work-related psychological distress and to gather evidence in relation to any outcomes and/or experiences associated with their use.

In line with the revised transactional model of occupational stress and coping, it will be important to identify the most appropriate coping and appraisal strategies for those in work-related psychological distress in the face of work-related psychological distress (Goh, Sawang and Oei 2010). Such coping strategies could be identified by gathering evidence in relation to how midwives experience the use of interventions designed to support them. Equally, a midwife's appraisal of an event may also be captured within the outcomes associated with the use of an intervention. Therefore, the research questions to be addressed within this review are: 1) What interventions have been developed to support midwives and/or student midwives in work-related psychological distress? and 2) What are the outcomes and experiences associated with the use of these interventions?

Methods

This research is concerned with both the outcomes and the experiences associated with interventions designed to support midwives and/or student midwives in work-related psychological distress. In order to meet study objectives, the segregated systematic mixed-methods review design, as described by Sandelowski, has been employed (Sandelowski, Voils and Barroso 2006). This methodology is described as 'the design of choice' where a synthesis presents qualitative and quantitative findings separately. This method also allows the researcher to subsequently organise findings into a short line of argument synthesis, which provides a contemporary 'picture of the whole' (Barnett-Page and Thomas 2009, Noblit and Hare 1988).

This review method fits these research questions, as it has similarly done so in other recent reviews looking to establish and assess the nature and usefulness of interventions (Preddy and Bird 2017, Watson and Downe 2017). This is because in this context, qualitative enquiry can work alongside quantitative research to explore how intervention is experienced and why it works to make an impact, rather than merely stating the positive or negative outcomes of an intervention (Harden 2010).

Protocol and registration

The protocol for this systematic mixed-methods review has been registered within PROSPERO, an international database of prospectively registered systematic reviews in health and social care, at http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42016036978. This PROSPERO record can also be found in appendix 2. The published version of this systematic mixed-methods review has been reported in compliance with the PRISMA guidelines (Moher et al. 2009). This publication is presented in appendix 1. A detailed PRISMA checklist which can be mapped against this publication can be found in appendix 3. The protocol registration number for this review is CRD42016036978.

Eligibility Criteria

All independent, peer reviewed studies published in English between 2000 and 2016 were considered for inclusion in order to reflect a more contemporary midwifery workplace.

All types of interventions and length of follow up were considered. Selected papers had to identify at least one intervention designed to support midwives and/or student midwives in work-related psychological distress. Any studies that met these criteria also had to report at least one outcome measure.

Participants/ population

This review included studies conducted with populations of both midwives and student midwives. This review defined the 'midwife' in line with the definition given by the International confederation of midwives (ICM's) definition that a midwife is a person who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife' (ICM International Confederation of Midwives 2011).

Student midwives were included due to the fact that they perform midwifery work, experience similar episodes of work-related psychological distress and are the successors of the profession (Coldridge and Davies 2017, Davies and Coldridge 2015b). Although it was recognised that student midwives effectively practise within a different role, and may experience different manifestations of work-related psychological distress, they were also considered to form a part of the midwifery workforce.

Interventions

To be included, studies had to evaluate an intervention designed to support midwives and/or student midwives experiencing work-related psychological distress.

Psychological distress has five defining attributes: (1) perceived inability to cope effectively, (2) change in emotional status, (3) discomfort, (4) communication of discomfort, and (5) harm (Ridner 2004). Psychological distress refers to a unique, discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person (Ridner 2004). Therefore, in line with this description, work-related psychological distress was defined as a unique, discomforting, emotional state experienced by an

individual in response to a specific work-related stressor or demand that results in harm, either temporary or permanent, to the person.

The outcomes that were considered to be associated with 'work-related psychological distress' in a midwifery context were defined as burnout, compassion fatigue, stress, anxiety, depression, cognitive impairment and/or any emotional distress formed in partnership with working within the midwifery profession.

Comparator(s)/ control

So that a larger number of potential studies could be included, studies were not required to include either a comparator or control group.

Outcome(s)

Primary outcomes

The identification of interventions designed to support midwives and/or student midwives in work-related psychological distress.

Secondary outcomes

Any quantitative and/or qualitative outcomes and/or experiences relating to intervention use were considered to be secondary outcomes.

Information sources

The systematic search was conducted between March 31 and May 24, 2016, using 6 electronic databases; namely PsycINFO, PsycARTICLES, MEDLINE, Academic Search Complete, Scopus and CINAHL. The use of these multiple databases is recommended in pursuit of conducting a more comprehensive search (Abdulla et al. 2016). In addition, the reference lists of identified studies were manually searched in an attempt to identify additional publications. The authors of papers identified for inclusion were also contacted to enquire about any further papers relevant for inclusion. Paper retrievals concluded on June 6, 2016.

Search

This search strategy was formulated subsequent to an initial and broad scoping review of the literature in relation to intervention research, midwives, student midwives and work-related psychological distress. During this scoping review, the abstracts and key words of significant papers were scanned and identified. Recurring phrases and key words were then taken and applied to this search. This search strategy was designed to be very broad in nature to capture as many studies relating to the research questions as possible. This approach aligns with current best practice (Machi and McEvoy 2016).

Initially, keywords and terms relating to the identification of the midwifery profession were employed. Secondly, terms and headings available within each electronic database used which broadly related to any of the outcomes that were considered to be generally associated with 'work-related psychological distress' were used. Lastly, terms relating to work, employment, occupation and professional health were used in conjunction with terms associated with the management of general wellbeing, interventions, treatments, therapies and coping behaviours. These terms were used in order to capture the existence of any interventions designed to support this target population at work and any outcomes or experiences associated with their use.

Terms relating to workplace support interventions and the midwifery profession were used in order to capture relevant literature to address the first research question associated with this chapter: 2a) What interventions have been developed to support midwives and/or student midwives in work-related psychological distress?

Subsequently, terms relating to outcomes and experiences such as 'burnout', 'compassion fatigue' and 'depersonalisation' were used in order to collate user outcomes and experiences. This was done to address the second research question associated with this chapter: 2b) What are the outcomes and experiences associated with the use of these interventions?

Search terms were also aligned with the revised transactional model of occupational stress and coping presented by Goh and colleagues in order to more broadly map search terms to address the research questions associated with this review (Goh, Sawang and Oei 2010). As this review is predominantly concerned with interventions, search terms were more strongly correlated with the coping strategies component of this stress-specific model. However, in order to include all relevant literature, search terms which related to the stress-related outcomes and appraisal components of this revised transactional model of occupational stress and coping were also used (Goh, Sawang and Oei 2010).

Subsequently, truncations were used, and categories were 'exploded' where possible to improve the sensitivity of the search, account for spelling variations and to identify differences in any search terms used. Boolean logic was employed as each subset of similar terms relating to population, outcomes, interventions and experiences were combined with the word 'OR' and subsequently the lists of each subset were then combined with 'AND' in order to unite comparable concepts within the literature. This search strategy was modified in order to suit the various syntax, subject headings, MeSH headings and thesauruses utilised by the 6 databases used to conduct the search. Table 3 details the CINAHL with Full Text search, the complete search strategy used for all databases is presented in appendix 4.

Table 3: CINAHL with Full Text Search

Interface - EBSCOhost Research Databases **Search Screen -** Advanced Search **Database: CINAHL with Full Text Search** **Limiters -** Published Date: 20000101-20161231; Scholarly (Peer Reviewed) Journals **Search modes -** Find all my search terms		
#	**Query**	**Results**
S14	S5 AND S9 AND S13	211
S13	S10 OR S11 OR S12	673,083
S12	AB (work* OR job OR occupation* OR employment OR Profession*) AND AB ("Employee Assistance Programs" OR MM "Workplace Intervention" OR "Resilience (Psychological)" OR "Coping Behavior" OR "Coping behaviour" OR "Psychological Endurance" OR "Stress and Coping Measures")	105
S11	TI (work* OR job OR occupation* OR employment OR Profession*) AND TI ("Employee Assistance Programs" OR MM "Workplace Intervention" OR "Resilience (Psychological)" OR DE "Coping Behavior" OR "Coping behaviour" OR "Psychological Endurance" OR "Stress and Coping Measures")	37
S10	(MH "Coping+") OR (MH "Help Seeking Behavior") OR (MH "Employee Assistance Programs") OR "Employee Assistance Programs" OR (MH "Occupational Health Services") OR (MH "Peer Assistance Programs") OR (MH "Self Care") OR (MH "Stress Management") OR "Workplace Intervention" OR "anxiety management" OR "Cognitive Techniques" OR (MM "Disciplines, Tests, Therapy, Services+") OR (MH "Relaxation Techniques") OR (MH "Behavior Therapy") OR (MM "Therapeutics+") OR (MH "Mind Body Techniques+") OR (MH "Alternative Therapies+") OR "coping measures" OR "resilience"	672,917
S9	S6 OR S7 OR S8	150,853
S8	AB ((work* OR job* OR occupation* OR employ* OR Profession*)) AND AB ((stress* OR burnout OR pressure* OR compassion fatigue OR wellbeing OR well being OR well-being OR psychosomatic health OR cognitive wellbeing OR cognitive well being OR cognitive well-being OR professional wellbeing OR professional well being OR professional well-being))	29,758
S7	TI ((work* OR job* OR occupation* OR employ* OR Profession*)) AND TI ((stress* OR burnout OR pressure* OR compassion fatigue OR wellbeing OR well being OR well-being OR psychosomatic health OR cognitive wellbeing OR cognitive well being OR cognitive well-being OR professional wellbeing OR professional well being OR professional well-being))	4,254
S6	(MM "Stress, Occupational") OR (MH "Job Satisfaction") OR (MH "Impairment, Health Professional") OR (MM "Stress, Psychological+") OR (MM "Burnout, Professional") OR (MH "Depersonalization") OR (MH "Mental Fatigue") OR "compassion fatigue" OR (MH "Anxiety+") OR (MH "Depression") OR (MM "Stress Disorders, Post-Traumatic+") OR (MH "Organizational Culture+") OR (MM "Quality of Working Life") OR (MM "Occupational Health") OR (MH "Psychophysiologic Disorders+") OR (MH "Substance Use Disorders")	128,314
S5	S1 OR S2 OR S3 OR S4	23,998
S4	AB midwif* OR midwives	10,886
S3	TI midwif* OR midwives	11,964
S2	(MM "Midwifery+")	9,183
S1	(MM "Midwives+")	4,565

Study selection

Retrieved articles from all databases were exported into a RefWorks database and duplicate articles were removed. Firstly, an initial assessment of the retrieved articles was performed to identify potentially eligible studies which referred to interventions of support. Titles and abstracts were screened for relevance. These screened articles were then cross checked and assessed for accuracy of selection. The full texts of eligible articles were assessed against the inclusion criteria. Articles which did not meet the inclusion criteria were excluded.

Data Collection process

Data was extracted from selected studies using the MAStARI data extraction instrument from JBI-NOTARI (Pearson 2004). This tool is presented within appendix 5.

Data items

Study population information, study methods and outcomes of significance to both the primary and secondary outcomes of this review were extracted from the data. Any anecdotal findings were omitted from the data collected.

Quality Appraisal

Scientific rigor is important in research, as the findings of more rigorous studies may be assigned more value. The key components of scientific rigour have been described more recently as reliability, generalisability and validity (Morse 2015). If a study has reliability, it will have the ability to obtain the same results if it were to be repeated (Morse 2015). If a study is generalisable, results can be extended and applied to other populations, places or times than those directly studied (Flick 2014). However, it must be noted that the findings of a rigorous qualitative study cannot be generalised, only applied to other participants or alternate contexts (Petty, Thomson and Stew 2012). If a study has validity, any inferences made will be accurate and well-founded (Polit and Beck 2012).

Yet scientific rigor may be assessed differently in both qualitative and quantitative research, as the desired outcomes for both may differ substantially. A rigorously conducted qualitative study is concerned with the integrity of design, the

trustworthiness of findings, the meticulousness of analysis and the clarity of reporting (Munhall 2012). A rigorously conducted quantitative study is precise, and uses specific measuring tools, a representative sample, and a tightly controlled study design (Grove, Burns and Gray 2014).

Quality appraisal in this context is the process of systematically examining the retrieved research to judge the extent to which a study's design, conduct, and analysis has minimised selection, measurement, and confounding biases, and its trustworthiness, value and relevance (Burls 2009, Lomas et al. 2005). There are many tools and checklists designed to appraise the quality of studies. Quality appraisal tools differ from reporting guidelines, as reporting guidelines are designed and followed to encourage better designed studies that will be easier to read and understand (West et al. 2002). Such reporting guidelines direct how a study should be presented or 'reported'. Reporting guidelines are not to be used for assessing the quality of studies. However, they can make the process of quality appraisal more efficient.

In this mixed-methods review, the methodological quality of all eligible articles identified were assessed. This was done using the scoring system for appraising mixed-methods research, and concomitantly appraising qualitative, quantitative and mixed-methods primary studies in mixed reviews, as published by Pluye and colleagues (Pluye et al. 2009). This scoring system uses 15 quality criteria. A score was assigned to each of these criteria as follows; presence/absence of quality criteria; 1/0 respectively. A 'quality score' was then calculated via the following formula [(number of 'presence' responses divided by the number of 'relevant criteria') × 100]. Overall quality scores are presented in table 4. This tool was selected due to its ability to comprehensively quality appraise all of the study types selected for inclusion concomitantly and efficiently.

Risk of bias in individual studies

In order to assess risk of bias within the mixed-methods, quantitative and qualitative studies retrieved, the assessment of methodological rigor tool devised by Hawker and colleagues was applied at study level (Hawker et al. 2002). This tool was chosen due to

its ability to assess bias in both mixed-methods, qualitative and quantitative research as appropriate.

Summary measures

Cohen's d, an effect size used to indicate the standardised difference between two means, and 95% confidence intervals (CI) were calculated using pre-and post-intervention quantitative data where possible. CI for the effect size between pre-and post-intervention data were calculated for the quantitative results reported by both Wallbank, and Foureur and colleagues (Foureur et al. 2013, Wallbank 2010). For the study presented by Warriner and colleagues (Warriner, Hunter and Dymond 2016), 95% CI for the proportion that reported positive impact were calculated using the Wilson procedure with corrections for continuity (Wilson 1927). These calculations are presented in table 6.

Synthesis of results

As this review was regarded as the configuration, rather than the assimilation of both qualitative and quantitative research findings, results are presented in line with the segregated systematic mixed-methods review approach (Sandelowski, Voils and Barroso 2006). As such, the data extracted was categorised and grouped together as being either qualitative or quantitative. Here, the qualitative and quantitative results of each study are presented separately, and narratively.

Risk of bias across studies

Publication, time lag, selective outcome reporting and language biases were considered throughout the process of review.

Results

The search strategy identified 524 articles. Sixty-one duplicate articles were removed to reveal 463 articles for further screening. At this stage, 429 articles were excluded as they fell outside the scope of this review. This left 34 articles to screen for eligibility, 6 of which were selected for inclusion. Articles were excluded because they either did not test a targeted intervention (n=13), did not focus on psychological distress (n=8) or presented themselves as a literature review (n=7). The study selection process is outlined in Figure 5. Table 4 presents the papers selected for inclusion.

Figure 5. PRISMA Flow Diagram

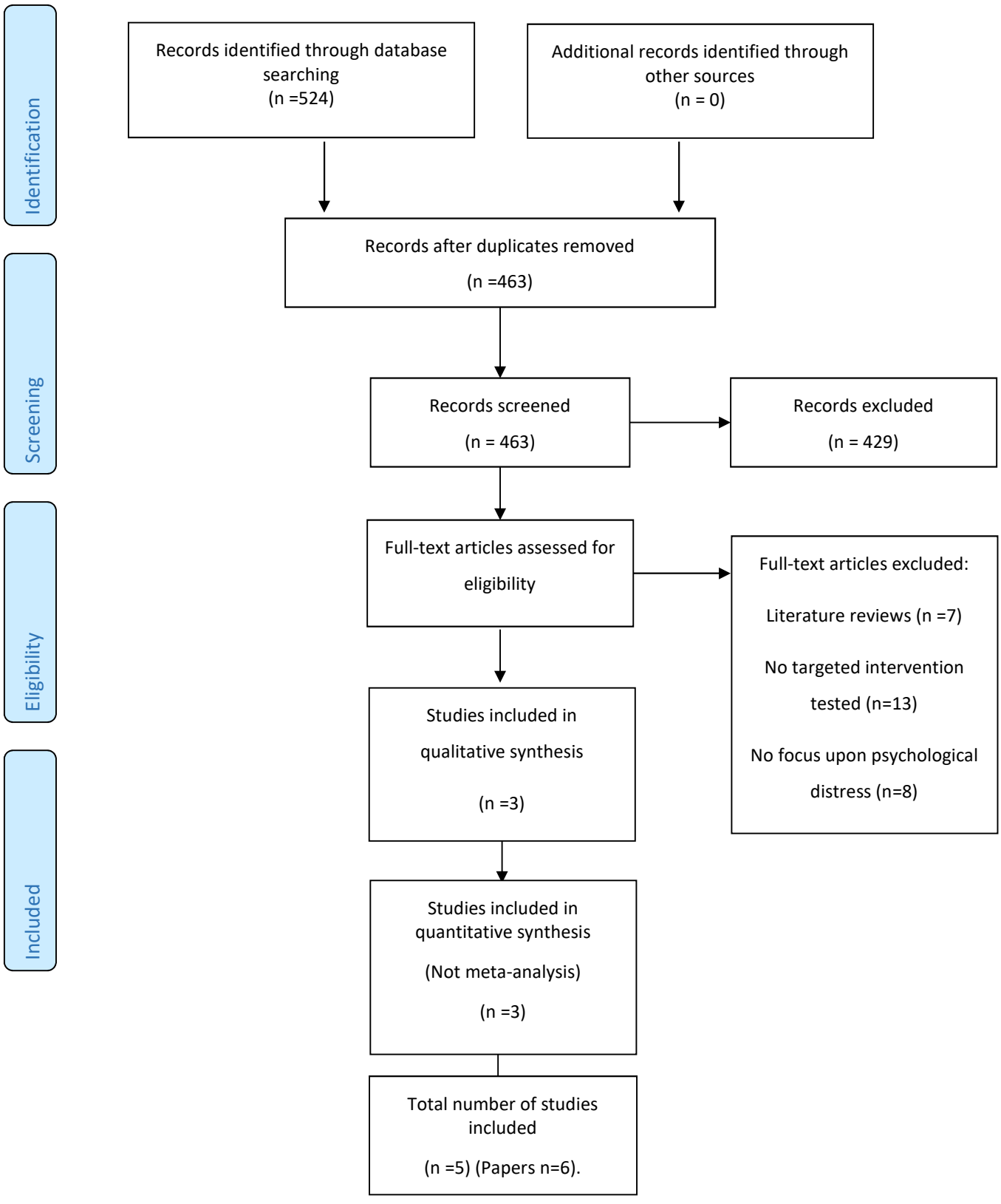


Table 4: Study overviews and characteristics

Paper Retrieved	Sample Number	Period of Study	Sample Type	Study Design	Intervention	Measurement Tools	Place of Study	Quality Score*
(Foureur et al. 2013)	40	8 weeks and 1-day intervention period 4-8-week follow up period	Nurses (50%) and midwives (50%)	Mixed-methods pilot study (No comparison group)	Mindfulness based stress reduction programme (MBSR)	-Log books -GHQ-12 -SOC – Orientation to Life scale -The DASS scale -Qualitative interviews -Qualitative focus group	Australia	67%
(van et al. 2015)	14	7-week intervention period 2-week follow up period	First year nursing and midwifery students	Cohort study	7-week stress management and mindfulness course	-Qualitative semi-structured focus group interviews	Australia	50%
(Wallbank 2010)	30	6 'sessions of supervision'	Midwives and Doctors working in obstetrics and gynaecology	Pilot study (2 randomised samples)	6 sessions of clinical supervision given by a clinical psychologist	-Positive and negative affect schedule (PANAS) -Professional Quality of Life scale (ProQol) -Impact of Event Scale (IES)	United Kingdom	67%
(Warriner, Hunter and Dymond 2016)	46	8 weeks and 6 days intervention period 4–6-month follow up period	Hospital (30%), community (30%) and research midwives (9%), maternity support workers (18%), student midwives (9%), doctors (2%) and lecturers (2%)	Cohort study	Mindfulness Course	-Immediate post follow-up quantitative questionnaire -4–6-month follow-up quantitative questionnaires	United Kingdom	33%
(McDonald et al. 2013)	14	6-month intervention period 6-month follow up period	Nurses and midwives	Qualitative case study	Work-based resilience workshops partnered with a mentoring programme	-Qualitative interviews - Participant evaluations -Field notes	Australia	67%
(McDonald et al. 2012)	14	6-month intervention period Immediate post-intervention data collection	Nurses and midwives	Qualitative case study	Work-based resilience workshops partnered with a mentoring programme	-Qualitative interviews -Field notes -Research journal	Australia	50%

*Quality score: = [(number of 'quality criteria presence' responses divided by the number of 'relevant criteria') × 100].

Study Characteristics

This systematic mixed-methods review identified 6 papers for inclusion. A total of 144 participants were included within this review (assuming the same 14 participants were included within 2 papers relating to the same study) (McDonald et al. 2012, McDonald et al. 2013). All studies included samples of either midwives and/or student midwives. However, studies also included nurses, doctors, student nurses, maternity support workers and lecturers in their study samples (Foureur et al. 2013, McDonald et al. 2012, McDonald et al. 2013, van et al. 2015, Wallbank 2010, Warriner, Hunter and Dymond 2016).

Interventions delivered

In total, n=100 (69%) participants were delivered mindfulness interventions, n=14 (10%) participants were delivered work-based resilience workshops partnered with a mentoring programme, and n=30 (21%) participants were either randomly allocated to a control group or delivered the intervention of clinical supervision.

Intervention delivery periods varied from 7-8 weeks (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016) to 6 months (McDonald et al. 2012, McDonald et al. 2013). One study did not specify the period of evaluation (Wallbank 2010). Of those that did, follow up periods varied between 2 weeks (van et al. 2015) and 6 months (McDonald et al. 2013, Warriner, Hunter and Dymond 2016).

Study design

Some of these studies were described as either pilot or feasibility studies, yet only two (Foureur et al. 2013, Wallbank 2010) were found to conform to the standardised definitions of either a pilot or a feasibility study (Abbott 2014, Arain et al. 2010). As such, some studies were redefined as cohort studies (van et al. 2015, Warriner, Hunter and Dymond 2016), where both a comparison and/or control group are not a necessary feature (Dekkers et al. 2012), as they each analysed either repeated outcome measures and/or observed a cohort of participants distinguished by some variable (DiPietro 2010, Doll 2004, Hellems, Kramer and Hayden 2006). These papers may also have been

described as case series, however, they did not use the required validation tools needed to meet this criterion (Carey and Boden 2003). Case series also cannot be used to draw any inferences regarding treatment effect. Two of the papers retrieved (McDonald et al. 2012, McDonald et al. 2013) each fittingly reported themselves to be one part of a larger collective case study in which midwifery cohorts were included (Gerring 2004).

Outcomes

Data within the study by Foureur and colleagues (Foureur et al. 2013) was extracted via log book entries, qualitative interviews and a focus group, the GHQ-12 general health questionnaire, the SOC – (Sense of Coherence - Orientation to Life scale), and the DASS (Depression, Anxiety and Stress Scale). The study by Wallbank used the PANAS schedule, the ProQol (Professional Quality of Life) scale and the IES (Impact of Event Scale) scale to extract data (Wallbank 2010). Other studies used a research journal and field notes, 'evaluations' and qualitative interviews (McDonald et al. 2012, McDonald et al. 2013), qualitative focus group interviews (van et al. 2015) and evaluation questionnaires (Warriner, Hunter and Dymond 2016).

All studies reported positive outcomes in relation to the psychological wellbeing of midwives. These positive outcomes related to an improved sense of wellbeing (Warriner, Hunter and Dymond 2016), reduced stress (Wallbank 2010, Warriner, Hunter and Dymond 2016), enhanced confidence, self-awareness, and assertiveness, self-care (McDonald et al. 2012, McDonald et al. 2013), improved general health and sense of coherence (Foureur et al. 2013), improvements in compassion satisfaction and a reduction in burnout and compassion fatigue (Wallbank 2010), a sustained positive impact on anxiety, resilience, self-compassion and mindfulness (Warriner, Hunter and Dymond 2016) and increased concentration, clarity of thought and a reduction in negative cognitions (van et al. 2015).

Risk of bias assessments for the individual studies are presented in table 5 using the assessment of methodological rigor tool devised by Hawker and colleagues (Hawker et al. 2002).

Table 5: Risk of bias within studies using the assessment of methodological rigor tool

Item of assessment	Foureur et al (2013) (Foureur et al. 2013)	van der Riet et al, (2015) (van et al. 2015)	Wallbank (2010) (Wallbank 2010)	Warriner et al (2016) (Warriner, Hunter and Dymond 2016)	McDonald et al (2013) (McDonald et al. 2013)	McDonald et al 2012) (McDonald et al. 2012)
Abstract and title	Fair No structured abstract	Good Structured abstract with full information and clear title	Fair Abstract with most of the information	Poor Inadequate abstract	Fair Abstract with most of the information	Poor Inadequate abstract
Introduction and aims	Poor Some background but no objectives or research questions	Poor Some background but no specific research questions	Poor Some background but no specific aim	Poor Some background but no aim/objectives/ questions	Poor No research questions outlined	Poor Some background but no aim/objectives/ questions
Methods and data	Fair Method appropriate, description could be better	Good Clear details of the data collection and recording	Fair Method appropriate, description could be better	Good Method is appropriate and described clearly	Good Clear details of the data collection and recording	Poor Method described inadequately
Sampling	Poor Sampling mentioned but few descriptive details	Good Response rates shown and explained (small sample size)	Fair Most information given, but some missing	Fair Most information given, but some missing	Fair Most information given, but some missing	Fair Most information given, but some missing
Data analysis	Fair Descriptive discussion of analysis	Good Description of how themes derived	Fair Descriptive discussion of analysis	Fair Quantitative	Fair Descriptive discussion of analysis	Poor Minimal details about analysis
Ethics and bias	Fair Lip service was paid	Fair Lip service was paid	Very poor No mention of issues	Very poor No mention of issues	Good Ethical issues addressed (no mention of bias)	Poor Brief mention of issues
Findings/results	Good Sufficient data are presented to support findings	Poor presented haphazardly	Fair Data presented relate directly to results	Good Results relate directly to aims	Good Findings explicit, easy to understand	Poor Findings presented haphazardly
Transferability/ generalizability	Fair Some context and setting described	Poor Minimal description of context/setting	Fair Some context and setting described	Good Sufficient data are presented to support findings	Fair More information needed to replicate	Fair Some context and setting described
Implications and usefulness	Fair No implications for policy considered	Poor No suggested implications	Fair Did not suggest ideas for further research	Fair No suggestions for further research	Good Contributes something new	Fair Does not suggest ideas for further research

Results of individual studies

Findings from mindfulness based interventions whereby participants were asked to attend sessions and complete additional home based practice were reported by 3 of the studies included (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016). Another two papers report the effects of work-based resilience workshops partnered with a mentoring programme (McDonald et al. 2012, McDonald et al. 2013), and one study examined the effectiveness of clinical supervision in reducing staff stress (Wallbank 2010). All interventions were delivered face-to-face. Interventions were facilitated by experienced psychologists, the Oxford Mindfulness Centre and books (Warriner, Hunter and Dymond 2016), a workshop facilitator (Foureur et al. 2013), counsellors (van et al. 2015), a clinical psychologist (Wallbank 2010) and invited 'expert presenters' (McDonald et al. 2012, McDonald et al. 2013).

Table 6: Outcomes considered, summary findings, effect estimates and confidence intervals

Study	Outcome	95% Confidence Interval for effect size	Cohen's d	Summary of findings
(Wallbank 2010)	Treatment Group			-A reduction in staff stress, burnout and compassion fatigue -Increase in compassion satisfaction -No statistically significant difference in the scores of the control group compared with their earlier scores.
	Total stress impact of events (IES) and (PANAS)	(-3.64 to -1.67)	2.66	
	Compassion fatigue (ProQol)	(-1.50 to -0.01)	0.76	
	Compassion satisfaction (ProQol)	(0.15 to 1.65)	-0.90	
	Burnout (ProQol)	(-2.95 to -1.17)	2.06	
	Control Group			
	Total stress impact of events (IES) and (PANAS)	(-0.63 to 0.80)	-0.09	
	Compassion fatigue (ProQol)	(-0.60 to 0.82)	-0.10	
	Compassion satisfaction (ProQol)	(-0.84 to 0.58)	0.13	
	Burnout (ProQol)	(-0.33 to 1.11)	-0.39	
(Foureur et al. 2013)	Orientation to life (SOC)	(0.23 to 1.23)	-0.75	-Improved general health and sense of coherence -Lower stress levels
	Comprehensibility (SOC)	(0.12 to 1.11)	-0.62	
	Manageability (SOC)	(-0.11 to 0.84)	-0.37	
	Meaning (SOC)	(-0.29 to 0.66)	-0.18	
	Depression (DASS)	(-0.82 to 0.14)	0.33	
	Anxiety (DASS)	(-0.72 to 0.24)	0.29	
	Stress (DASS)	(-1.16 to -0.18)	0.67	
	General health (based on sum of Likert ratings) (GHQ12)	(0.38 to 1.38)	-0.88	
	General health (based on dichotomous scoring) (GHQ12)	(-1.10 to -0.11)	0.61	
(van et al. 2015)	Attending to self	-No statistical data available		-Stress reduction -An enhanced ability to attend to self and others
	Attending to others			
	Cognitive function			
	Stress			
	Self-awareness			
Study	**Outcome**	**95% confidence interval for proportion positive**	**Cohen's d**	**Summary of findings**
(Warriner, Hunter and Dymond 2016)	Stress (based on Positive impact n (%)Likert ratings)	(0.60 to 0.94)	No mean differences available	-Sustained positive impact on stress, anxiety, resilience, self-compassion and mindfulness -Positive impact on depression -Benefit in home life, work life and workplace culture
	Depression (based on Positive impact n (%)Likert ratings)	(0.12 to 0.52)		
	Resilience (based on Positive impact n (%)Likert ratings)	(0.47 to 0.85)		
	Self-Compassion (based on Positive impact n (%)Likert ratings)	(0.51 to 0.88)		
	Anxiety (based on Positive impact n (%)Likert ratings)	(0.45 to 0.85)		
	Mindfulness (based on Positive impact n (%)Likert ratings)	(0.70 to 0.98)		
	Benefit to home life (based on dichotomous scoring)	(0.65 to 0.96)		
	Benefit to work life (based on dichotomous scoring)	(0.70 to 0.98)		
	Benefit to workplace culture (based on dichotomous scoring)	(0.36 to 0.78)		
(McDonald et al. 2013)	Confidence	-No statistical data available		-Reduced experience of stress -Increased assertiveness at work, collaborative capital and understanding self-care practices -Improved relationships, communication and wellbeing
	Self-awareness			
	Self-care			
	Assertiveness			
(McDonald et al. 2012)	Workplace culture	-No statistical data available		-A closer group dynamic, more supportive communication, assertiveness and confidence -Growth in knowledge of personal resilience -Increased conflict resolution skills

Quantitative study findings

Foureur and colleagues present a pilot study in which 20 nurses and 20 midwives from two metropolitan teaching hospitals in New South Wales, Australia, who self-identified as experiencing stress in the workplace took part in a mindfulness-based stress reduction (MBSR) programme (Foureur et al. 2013). This intervention was designed to increase the of coherence and improve the health of midwifery and nursing populations and also to decrease depression and anxiety. The workshop facilitator delivered this one-day workshop, introduced the research, then went on to discuss the impact of stress on being in the present moment, introduce the concept of mindfulness, describe grounding and diffusion strategies and report how participants might form 'effective habits' (Foureur et al. 2013).

Participants also received a copy of a 'mindfulness practice CD', and were asked to complete three questionnaires prior to workshop attendance and again 4–8 weeks after participation. Of those who participated in follow up surveys, N = 14 (50%) provided log books of their experiences, N=28 (70%) of participants returned the post-intervention surveys, and N=10 (35.7%) of those participants contributed their experiences within either a focus group or individual interview (Foureur et al. 2013). Participants reported that they practised their newly learnt techniques over 44.4% of the available daily practice periods.

Foureur and colleagues used the short form GHQ-12 questionnaire (Goldberg et al. 1997), the SOC – Orientation to Life scale (Eriksson and Lindstrom 2006) and the DASS scale to evaluate an adapted MBSR intervention (Lovibond and Lovibond 1995). A reduction in stress levels for some participants was reported. Statistically significant differences were found on scores for the GHQ12 measure, the SOC-Orientation to life scale and the stress subscale of the DASS, where improvements were seen in the general health of midwives, their sense of coherence and orientation to life. One's sense of coherence has been defined as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that 1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable, 2) the resources are available to one to meet the demands posed by these

stimuli; and 3) these demands are challenges, worthy of investment and engagement" (Antonovsky 1987) p. 107. The concept of one's orientation to life comprises of three components signifying an ability to cope with stress; life's meaningfulness, comprehensibility and manageability (Antonovsky 1987).

Another evaluation of a mindfulness based programme recruited 38 midwives out of a cohort of 43 healthcare staff to participate in an 8-week course (Warriner, Hunter and Dymond 2016). This study reveals a set of practices that can be incorporated into daily life to help break the cycle of unhappiness, stress, anxiety and mental exhaustion. The course, 'Mindfulness: Finding Peace in a Frantic World' runs for 60-90 minutes per week, and participants are invited to commit to 30 minutes of home practice daily for 6 days of the week. For this study, 46 participants were recruited, with 43 completing the course. Of these participants, 78% (n= 36) were identified as midwives. Course attendance averaged 87% for available sessions, non-attenders largely cited unavailability due to work shifts, sickness and vacation leave as reasons for absence.

Immediate post-intervention evaluation questionnaires indicated that 97% of participants found the course helpful, useful and would recommend it to others. Ongoing benefits were observed via a 4-6-month post-intervention questionnaire, where the majority of participants reported a sustained positive impact on stress (83%, n=19), anxiety (68%, n=15), resilience (70%, n=16), self-compassion (74%, n=17) and mindfulness (91%, n=21) (Warriner, Hunter and Dymond 2016). At the end of the 4-6 month follow up period, the majority of staff reported that they were applying their newly learnt skills either weekly or daily. At this time, 50% (n=6) of the participants who reported that depression was relevant to them, also reported that the mindfulness course had had a positive impact on their mood. Overall, this study reports significant and positive impacts for staff, as respondents reported benefit in home life (87%, n=20) work life (91%, n=21) and the culture of their workplace (59%, n=13) (Warriner, Hunter and Dymond 2016).

With regards to clinical supervision being delivered as an intervention provided by a clinical psychologist over 6 sessions, Wallbank reports a significant reduction in subjective stress levels, burnout and compassion fatigue (Wallbank 2010). The clinical supervision

being delivered in this study was 'restorative' in nature, and applied the Solihull approach (Douglas 2006).This approach uses 'containment' as a method of processing anxiety and emotions so that the ability to 'think' is restored.

Thirty midwives and doctors participated in this study, and were allocated (presumably equally) to either a control (n=15) or treatment (n=15) group. Wallbank utilises the PANAS Schedule, the ProQol scale and the IES scale to calculate standardised measures before and after treatment. The treatment group received 6, one-hour clinical supervision sessions delivered by a clinical psychologist. Within the treatment group, there was a significant difference in the amount of subjective stress scores ($p<0.0001$), with average scores decreasing from 29 to 7. There was also a significant difference found in compassion satisfaction scores, as average scores increased from 37 to 41 ($p=.001$). Compassion satisfaction can be defined as the experience pleasure one gets from helping others (Fligey 1995). Additionally, average burnout scores decreased from 27 to 14 ($p<0.0001$) and compassion fatigue/secondary trauma average scores decreased from 16 to 12 ($p=.004$). For the control group, follow up results showed no statistically significant differences between post-study scores and earlier scores, apart from those relating to compassion fatigue, where scores slightly increased, yet were still not significant ($p=0.846$).

Interpretation of confidence intervals and effect sizes

Of the 6 papers retrieved, 3 provided enough statistical data to calculate CI and/or effect sizes for the outcomes measured (Foureur et al. 2013, Wallbank 2010, Warriner, Hunter and Dymond 2016). As shown in table 6, only two studies were suitable to calculate effect sizes via Cohen's d (Foureur et al. 2013, Wallbank 2010). More recently, Cohen's d has defined size effects to be either d (0.01) = very small effect, d (0.2) = small effect, d (0.5) = medium effect, d (0.8) = large effect, d (1.2) = very large effect, and d (2.0) = huge effect (Sawilowsky 2009). As such, the study by Wallbank has demonstrated a large effect size in measurements of compassion satisfaction and a medium effect size in measurements of compassion fatigue for the intervention group receiving clinical supervision (Wallbank 2010). Huge size effects were also noted for this group in measurements of burnout and

the composite scores associated with the total stress impact of events. However, for the control group, all size effects were calculated to be either small or very small.

In the study by Foureur and colleagues, medium size effects were calculated in scores relating to participants' orientation to life, stress, comprehensibility and general health based on dichotomous scoring (Foureur et al. 2013). Large size effects were calculated for scores relating to general health based on the sum of likert ratings, and scores relating to manageability, meaning, depression and anxiety were calculated to be small. A positive or negative Cohen's d represents the direction of the effect. For example, a negative effect size indicates an increase between the mean values, and a positive effect size indicates a decrease between the mean values.

Confidence intervals can be interpreted as being relatively narrow (e.g. 0.40 to 0.50), to being very wide (e.g. 0.50 to 1.10) (Schünemann et al. 2008). As such, none of the CI presented in table 6 can be defined as narrow. The wider intervals calculated demonstrate uncertainty in the estimated range within which one can be reasonably sure that the true effect or result actually lies. As these studies included small sample sizes, wider confidence intervals are to be expected, yet less assurance about the effects or results in these cases can be interpreted without larger sample sizes, reduced dropout rates and further information.

However, coupled CI values on the same side of zero (either positive or negative) indicate that an effect or result is significant. This is demonstrated in the study conducted by Wallbank, where each of the statistically significant CI for the treatment group fall on either the negative or positive side of zero, whilst the statistically insignificant CI presented for the control group do not (Wallbank 2010). Raw data were not available for these calculations.

Qualitative Study Findings

In Foureur and colleague's qualitative analysis of the effectiveness of an MBSR programme, 8 participants described feelings of being relaxed, calmer and more focused as a result of participation. Participants also described a new-found realisation of the importance of self-care, an increased capacity to be more aware of people, a tendency to

seek help more freely, and be able to control thoughts and stress more effectively (Foureur et al. 2013). However, for a small minority of participants, there was a clear view that their participation in MBSR had done little to ameliorate their workplace stress, and one participant experienced feelings of dizziness, nausea and was "concerned about the safety to the 'soul'". This study reports that the majority of participants who received this intervention experienced short term insights into the impact of stress on cognition, emotions and behaviour, and developed strategies for being in the present moment (Foureur et al. 2013).

Van der Riet and colleagues piloted another 7-week stress management and mindfulness intervention, designed to build resilience, reduce stress levels and improve concentration (van et al. 2015). Here, 14 nursing and midwifery students were invited to participate in seven, weekly 1-hour sessions. Each session involved a didactic component and an experiential component. During these sessions, the practice of sitting mindfulness was taught. This involves the participant sitting in an upright position and meditating in order to 'pay attention' to oneself. Participants were trained to scan their bodies and focus upon various physical sensations. Students were then encouraged to practise the exercises regularly at home in between formal sessions (van et al. 2015).

Two weeks after the concluding mindfulness session, 10 first year nursing and midwifery students participated in a 60-minute semi-structured, focus group interview. Many reported that they could not wholly engage with this intervention, and only 1 student attended all seven sessions. Participants also reported becoming more attentive towards themselves and others and better able to care for themselves and others in conjunction with an increased self-awareness and reduction in negative cognitions (van et al. 2015). Students described an increased sense of 'presence', 'balance' and 'focus'. Overall, this study reports that participants experienced increased concentration and clarity of thought, in conjunction with increased awareness and a reduction in negative cognitions (van et al. 2015).

McDonald and colleagues explore the efficacy of an intervention consisting of 6 work-based resilience workshops partnered with a mentoring programme delivered over a 6-

month period (McDonald et al. 2013). At three phases of study: pre-intervention; immediately post-intervention; and at 6 months' post-intervention, 14 nurses and midwives were invited to participate in face-to-face, semi-structured interviews.

This intervention encouraged participants to draw, paint, build collages, use art, photography interpretation, music, journaling and creative movement as work-based learning tools. In reference to resilience building, this creative expression was used to explore constructs and emotional responses that were difficult to express by words alone. During workshops, hand massage, relaxation techniques and aromatherapy were introduced to promote work-related stress relieving strategies. Explicitly, this workshop series explored the topics of mentoring, establishing positive nurturing relationships and networks, building hardiness, maintaining a positive outlook, intellectual flexibility and emotional intelligence, achieving work/life balance, enabling spirituality, reflective and critical thinking, and moving forward and planning for the future with participants.

Participants included a combination of enrolled nurses, registered nurses and registered midwives, some holding dual qualifications. Following participation, both personal and professional gains from these work-based resilience workshops partnered with a mentoring programme were reported. These gains are described by the researchers as experiential learning opportunities, creative self-expression, exposure to new ideas and strategies, increased assertiveness at work, improved workplace relationships and communication, increased collaborative capital, and an increased understanding of self-care practices (McDonald et al. 2013). In another paper, referring to the same workplace intervention, the 14 nurses and midwives reported an improved sense of wellbeing and a reduction in stress when interviewed following its delivery (McDonald et al. 2012). Following participation in these work-based resilience workshops partnered with a mentoring programme, nurses and midwives also reported being able to communicate better with staff whom they feel may be hostile or manipulative towards them.

Those who engaged with these work-based resilience workshops partnered with a mentoring programme reported that they were able to develop self-care strategies and adopt a more self-caring attitude (McDonald et al. 2013). Through partaking in creative

activities, participants also reported that they were better able to develop an internal dialogue, drawing attention to their individual strengths and the hostile aspects of working the healthcare services (McDonald et al. 2013). Participants also report a willingness and improved ability to monitor and maintain resilience strategies for both themselves and their colleagues (McDonald et al. 2012). Professionally, colleagues participating in this intervention noted a closer group dynamic, more supportive communication, assertiveness and confidence in the clinical setting. Overall, these two papers reporting on the same intervention, state that work-based, educational interventions that focus on personal resilience have significant potential to empower, improve participants' wellbeing and reduce stress in both clinicians and students. However, it is unclear which findings relate exclusively to the midwives who engaged with this intervention type.

Line of argument synthesis

For these samples, participating in these interventions can have a positive effect on a variety of outcomes in relation to work-related psychological distress. However, the experiences of a small minority are less favourable, and others are unable to engage wholly in these interventions as provided. Clinical supervision may produce short-term positive benefits, yet those who practice newly learnt mindfulness techniques regularly, and participate in resilience workshops partnered with a mentoring programme may experience positive effects over a longer period of time.

Midwives and student midwives who engage with interventions designed to support them can experience increased cognitive function, improved working relationships with colleagues and a greater appreciation of self-care practices. Feelings of being relaxed and facing the present moment with a sense of clarity can also be experienced. Additionally, as midwives and student midwives develop strategies to manage their own psychological and workplace experiences, they can also develop assertiveness, improved communication skills and workplace resilience. The consensus of these studies is that interventions designed to support midwives and/or student midwives in work-related psychological distress can provide a range of both personal and professional benefits for

users. However, given the lack of data for comparison, small sample sizes and a lack of high quality studies, this line of argument synthesis is tentative.

Risk of bias across studies

As the studies within this review report either significant or favourable results, they may be more likely to be published than studies with non-significant or unfavourable results, and therefore be at risk of publication bias. Time lag biases may also be present within the studies selected, however, due to lack of relevant information these cannot be explored. Language biases, where non-English language articles are more likely to be rewritten in English if they report significant results are not likely in this case, as the studies selected for review were conducted within majority native English speaking countries. Selective outcome reporting is recognised where non-significant study outcomes are entirely excluded on publication, however, it is not possible to assess these biases in this case without access to individual participant data.

Discussion

This systematic mixed-methods review has identified 6 papers and 5 studies which evaluate interventions designed to support midwives and/or student midwives in work-related psychological distress. The strength of evidence for each of the outcomes reported in any of these studies cannot be rated highly. These studies include evaluations of 3 MBSR programmes, 1 work-based resilience workshop partnered with a mentoring programme, and the provision of clinical supervision.

Specifically, clinical supervision, the formal provision by senior/qualified health practitioners of intensive, relationship-based education and training, that is case-focused and which supports, directs and guides the work of colleagues (supervisees) (Milne 2007), has been found to result in a marked reduction in subjective stress levels (Wallbank 2010). Here, medium, large and huge effect sizes were noted for the treatment group, whereas either small or very small effect sizes were calculated for the control group.

Evaluations of work-based resilience workshops partnered with a mentoring programme reported enhanced confidence levels, increased self-awareness, improved assertiveness and an increased focus upon self-care in midwifery populations, where midwives felt

better able to build and maintain their personal resilience (McDonald et al. 2012, McDonald et al. 2013). This particular work-based intervention has also been found to have a sustained positive effect upon stress, anxiety, resilience and self-compassion (McDonald et al. 2013).

Participation in a mindfulness intervention was associated with short term insights into the impact of stress on cognition, emotions and behaviour, an increased sense of wellbeing, increased self-awareness and a reduction in negative cognitions for midwives in distress (van et al. 2015). Mindfulness can be highly acceptable to midwives, who reported ongoing and significant benefits in both their home and work life, and upon the culture of their workplace (Warriner, Hunter and Dymond 2016). Mindfulness practice was also seen to result in better general health; a more positive orientation to life; improved comprehensibility; and lower stress levels (Foureur et al. 2013). For these outcomes, 'medium' and 'large' size effects were calculated, yet effect sizes relating to manageability, meaning, depression and anxiety were calculated to be 'small'. Nevertheless, these studies are too few in number to form a recommendation that providers of health care services should implement these interventions to support midwives and/or student midwives in work-related psychological distress.

The outcomes measured within these interventions reflect the central element of the revised transactional model of occupational stress and coping in relation to the assessment of current occupational stress levels (Goh, Sawang and Oei 2010). Yet within these studies, some participants who receive mindfulness interventions found it challenging to attend sessions and complete any 'homework' given (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016). This can be in part due to clinical work pressures, the provision of uncomfortable surroundings, programme structure and time limitations (Foureur et al. 2013, van et al. 2015). As such, any future intervention would only be feasible if midwives are afforded time within the busy clinical workplace to dedicate themselves to committed and ongoing participation. It may also be prudent to develop and explore more flexible and accessible ways to deliver effective support to midwives and/or student midwives in work-related psychological distress.

The components which structure these interventions generally focus upon the development of effective coping strategies and the appraisal of stressful events in line with the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010). Nevertheless, in relation to those in work-related psychological distress, there are often no reliable clinical biomarkers present to assess the effectiveness of interventions designed to support such populations. Therefore, it is the user-reported outcomes which become the principle way in which the effectiveness of an intervention can be assessed (Buhse and Mühlhauser 2015). The majority of user-reported outcomes in the studies presented were positive in nature. Thus, the user-reported outcomes achieved have established effectiveness for these particular interventions in dealing with work-related psychological distress. This review has also been able to measure effectiveness by empirically calculating effect sizes where possible. The majority of the effect sizes calculated were positive, therefore any outcomes correlated to these can also be described as effective to a greater or lesser extent. However, it must be noted that any assessments of effectiveness are usually made during the evaluation phase, rather than during the pilot and feasibility testing phase of developing a complex intervention (Craig et al. 2008).

This review chose to utilise the MAStARI data extraction instrument from JBI-NOTARI (Pearson 2004), as this instrument has an evidence based ability to enable a reviewer to efficiently extract evidence using an information mastery approach. In order to assess the quality of such evidence within the retrieved studies, this review had originally considered using the 'Strength of Recommendation Taxonomy' (SORT) (Ebell et al. 2004) and the Cochrane risk of bias tool (Higgins and Altman 2008). However, although these tools are deemed to be scientifically rigorous in nature, they would have been inappropriate for the majority of mixed-methods research retrieved by this review, and therefore underutilised, as certain elements of the appraisal and data extraction process would not apply.

Had this study employed the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) guidelines to assess risk of bias and study quality, a wider range of methodological flaws within a wider range of studies may have been possible (Guyatt et al. 2011). This tool also enables the reviewer to assess the consistency and

generalisability of results across a range of studies. As such, this tool would have been a preferred option, had a larger sum of studies been retrieved. Yet with a small number of mixed-method research in need of appraisal, the scoring system for appraising mixed-methods research, and concomitantly appraising qualitative, quantitative and mixed-methods primary studies in mixed reviews, as published by Pluye and colleagues was considered to be most appropriate (Pluye et al. 2009). This was because this tool enabled the researcher to quality appraise all of the study types selected for inclusion methodically, concomitantly and efficiently. For this same reason, the assessment of methodological rigor tool devised by Hawker and colleagues was applied at study level (Hawker et al. 2002). These research decisions have certainly strengthened the rigor and quality of research in this regard.

The aim of this systematic mixed-methods review was to focus on midwives and student midwives, yet the populations included within the studies retrieved were more heterogenic than just midwives and/or student midwives alone. None of the studies within this review solely related to either qualified midwives or student midwives. Given that there are interventions designed exclusively to support the wellbeing of other groups of healthcare professionals at work, future intervention research could usefully account for the fact that the midwifery profession is a separate profession, which may also require targeted support.

Additionally, none of the interventions identified focussed upon either the organisational or the societal aspects of supporting staff in work-related psychological distress. Instead, the included studies focus upon individualised interventions. Similarly, interventions which draw from stress-specific transactional models of stress are also primarily focussed upon the individual. This is demonstrated in the review of such interventions conducted by Ryan and colleagues (2017), where all but one was "individual"-focused. Likewise, the revised transactional model of occupational stress and coping presented by Goh and colleagues also focusses upon appraisal, coping strategies and outcomes in relation to the individual, rather than the organisation (Goh, Sawang and Oei 2010).

However, the paucity of attention given to both the organisational or the societal aspects of supporting staff in work-related psychological distress may lead to the conceptualisation that the burden of work-related psychological distress is primarily an individualised responsibility, rather than a corporate or societal responsibility. The challenge will be to explore the development of a wider range of support interventions more rigorously. Future intervention studies may be improved by recruiting larger samples to focus upon longer-term outcomes for midwifery populations. It will also be important for any new or ongoing pilot studies to progress towards undertaking adequately powered randomised controlled trials.

Limitations

This review is limited to international findings captured within first world countries. Other studies may have avoided retrieval, as this search strategy was conducted using only the English language. Owing to a paucity of information, it has not been possible to conduct additional analysis such as sensitivity, subgroup analyses, meta-analysis or meta-regression.

Two of the papers retrieved provided case studies in relation to one single intervention. This may have altered the weight of evidence in this regard. This has also meant that the same 14 participants have been studied within 2 of the papers retrieved.

There is no clear understanding of how these particular interventions lead to the outcomes they produce. In order to identify those interventions which may be most suitable for future use, it is important to understand how any current interventions function (Moore et al. 2015). This form of process evaluation in the assessment of any complex intervention is imperative, because these evaluations assist developers and decision makers to distinguish between interventions that are fundamentally flawed (failure of intervention concept or theory) and those that are poorly delivered (implementation failure) (Craig et al. 2008, Rychetnik et al. 2002). Process evaluations may examine the views of participants, help to correct implementation problems, distinguish between an intervention's components, explore the process of implementation, receipt, and setting of an intervention, investigate any contextual and/or variable factors, assess

potential reach and support the interpretation of findings (Wight and Obasi 2003). As such, the interventions identified within this review along with any new interventions in development could be optimised by undertaking process evaluations to identify and overcome implementation problems.

Additionally, some baseline data is absent and it is unclear whether treatment fidelity measures have been used to assess delivery. Interventions are also not described in such a way that these studies could be accurately replicated (Craig et al. 2008). Moreover, workplace distress, and any change in the experience of or response to workplace distress, was not directly measured. Sample sizes were also small. Moreover, the heterogeneity of these samples made some findings difficult to extrapolate solely to midwifery populations. The retrieved studies are not of high quality, and only one study included a control group. Therefore, some of the outcomes apparent may be due to other factors such as social desirability effects or the therapeutic alliance with those administering the intervention rather than the type of intervention or mode of delivery per se.

Conclusion

At present, there is a lack of high quality studies which identify and evaluate potential interventions to deliver effective support for midwives in work-related psychological distress. This systematic mixed-methods review has retrieved and analysed 6 papers. These papers present the outcomes of mindfulness interventions, work-based resilience workshops partnered with a mentoring programme, and the provision of clinical supervision, and the experiences of the midwives in work-related psychological distress who engage with them. The findings from these studies illustrate a range of benefits and constraints associated with each intervention as they pertain to the midwifery workforce.

All selected studies reported a variety of both personal and professional benefits for midwives. This is the first mixed-methods systematic review to report the outcomes and experiences associated with the use of interventions designed to support midwives and/or student midwives in work-related psychological distress.

Similar reviews of interventions designed to support the psychological wellbeing of healthcare professionals in the workplace report encouraging results (Guillaumie, Boiral and Champagne 2016, Murray, Murray and Donnelly 2016, Regehr et al. 2014, Romppanen and Häggman-Laitila 2016, Ruotsalainen et al. 2015). Yet likewise, these other reviews do not identify high quality studies in relation to interventions designed to support midwives and/or student midwives in work-related psychological distress. Targeting midwifery populations for future intervention research may permit more concrete conclusions about the most effective design and delivery of such interventions.

One other review in relation to preventing stress in the healthcare workforce has included midwifery populations, and found that a variety of mindfulness interventions were beneficial to a variety of healthcare professionals (Burton et al. 2016). In line with the current review, this review also suggests that future intervention studies may wish to explore the provision of more flexible and accessible interventions. Although relevant in relation to midwifery populations, this review was restricted to the findings presented by Foureur and colleagues (Foureur et al. 2013).

Additional research is needed to build on this early foundation of evidence, and clarify which interventions or combinations of interventions might be most effective in addressing the pervasive problem of work-related psychological distress in midwifery populations. More flexible interventions, which provide a larger number of midwifery populations with wider access to support, perhaps online or away from scheduled sessions may secure greater adherence rates and isolate effects to determine which elements are affecting which outcome measures.

In terms of this research, the positive findings from this review would suggest that the components of these interventions should be considered for online development. Yet many of these components may only be suitable for face-to-face delivery. Additionally, it is unclear which components and interventions would be preferred by midwives. The next logical step in research will be to ascertain which components and which interventions may be most suitable for online development, and which may be preferred by midwives.

Ultimately, to secure excellence in maternity care, more rigorous, well-designed and generalisable studies in this area of intervention research are required.

This chapter has presented a systematic mixed-methods review of interventions designed to support midwives in work-related psychological distress. Overall, this thesis proposes that an online intervention may be useful to some midwives seeking support. Yet this review has demonstrated that although existing interventions may be somewhat effective, they are currently all delivered face-to-face. Therefore, there may be some scope to deliver some of these promising interventions online.

Online clinical supervision, although feasible would ideally require the professional to develop a trusting relationship with a supervisor prior to engaging in clinical supervision online (Kanz 2001). Additionally, it has been suggested that in order to be most effective, a sufficient amount of in-person time should be included within programmes of clinical supervision (Rousmaniere 2014). This would mean that confidentiality, anonymity and effective online clinical supervision as it has been described within this chapter may not be compatible in this context. Equally, the work-based resilience workshops partnered with a mentoring programme as they have been described within this review are not wholly transferable to an online environment. Yet mindfulness-based interventions delivered online have the potential to contribute to improving mental health outcomes, particularly stress, and as such, their use could be very applicable in an anonymous and confidential online intervention (Spijkerman, Pots and Bohlmeijer 2016).

In relation to the components of an online intervention to support midwives, the preferences of midwives are not yet known. As such, the next logical step in this research will be to achieve consensus in the preferences of midwives in relation to whether midwives would prioritise mindfulness-based and other components in an online intervention designed to support them. Therefore, the next chapter of this thesis aims to explore the priorities of midwives in the development of an online intervention designed to support them.

Chapter Four: Achieving consensus in the development of an online intervention designed to support midwives in work-related psychological distress: A Delphi Study

This thesis has explored the outcomes and experiences associated with interventions designed to support midwives and student midwives in work-related psychological distress. It has also evaluated the ethical issues in relation to the development of a complex online intervention designed to support midwives and student midwives in work-related psychological distress. The chapter previous to this has established that there are currently no interventions intended solely for either qualified midwives or student midwives in work-related psychological distress, and that these groups may require more flexible and accessible support. As this thesis proposes that an online intervention may be one option that some midwives experiencing work-related psychological distress may find useful, it is important to identify which components of an online intervention may be most preferable to this user group.

Accordingly, this chapter seeks the consensus of an expert group in what should be prioritised in the design and delivery of an online intervention designed to support midwives in work-related psychological distress. Research activities such as this are recommended by the MRC framework for developing complex interventions, to be conducted during the early development and planning phases of research (Craig et al. 2008). This study has been published elsewhere (Pezaro and Clyne 2016). The findings from this research and will ensure that any future co-production, development and evaluation of any online intervention of this type can be informed by the preferences of midwives and other key stakeholders.

Generally, online interventions offer unique benefits such as greater accessibility, anonymity, convenience and cost-effectiveness (Christensen, Batterham and Calear 2014). Yet it is not currently known what the most effective design and delivery method for an online intervention designed to effectively support midwives in work-related psychological

distress would be. Neither is it currently known what the preferences of midwives and other stakeholders would be in this regard. In order to address these gaps in research, the Delphi method has been chosen as an appropriate research method.

The Delphi Method

The Delphi method was chosen due to its ability to facilitate anonymous discussion, regardless of the geographical distances between participants (Hasson, Keeney and McKenna 2000). Anonymity within the group reduces the likelihood of any one person dominating the conversation due to perceived status or expertise (Hannes et al. 2015). The anonymity the Delphi method facilitates can also allow for a disinhibited freedom of speech, which in turn, leads to a more open opinion giving (Strauss and Zeigler 1975).

The Delphi technique has been used extensively within health, social science and intervention research (Efstathiou, Ameen and Coll 2008, Walker and Selfe 1996, Webber et al. 2015). The Delphi method is concerned with gathering the opinions of experts (Habibi, Sarafrazi and Izadyar 2014, Hasson, Keeney and McKenna 2000). As such, the Delphi method was considered to be a suitable research tool to develop expert consensus about the design and delivery of an online intervention to support midwives and/or student midwives in work-related psychological distress (Powell 2003).

The distinct characteristics of the Delphi technique result in:

1. Anonymity

2. Iteration

3. Controlled feedback about one's own and the groups' response

4. A group response where a statistical criterion is used to define consensus (Jorm 2015, Rowe and Wright 2001).

Rationale

Although earlier chapters have drawn on existing evidence and theory, this research can be built upon via the undertaking of new research, involving stakeholders to identify priorities for the design and delivery of an online intervention designed to support

midwives. Finding the most effective components for an online intervention to support midwives will require this wider expertise (Michie et al. 2005, Noar and Zimmerman 2005).

Many key guidelines for developing complex interventions identified within one critical review suggest that an intervention can be developed and refined in light of data gathered through the opinion of 'experts' (Corry et al. 2013). The Delphi technique has previously been used successfully to garner nurses' expert opinions of workplace interventions for a healthy working environment (Doran et al. 2014). As such, the Delphi method was considered appropriate for this early stage of research, as it aptly facilitates the process of deciding upon priorities for the design and delivery of a complex online intervention designed to support midwives (Craig et al. 2008).

The research question associated with this chapter is: What are the areas of expert consensus in relation to the delivery, features, functionalities and components of an online intervention to support midwives and/or student midwives in work-related psychological distress?

Participants

There are no clear guidelines in relation to what panel size is most appropriate for Delphi study design (Jorm 2015, Keeney, Hasson and McKenna 2001). Prior to the start of this study, it was decided that a minimum of 30 experts would be recruited to form the Delphi panel. Heterogeneity within the expert panel played an essential part in ensuring study quality (Powell 2003). Therefore, panel members were selected from different fields relating to midwifery care, healthcare, psychological distress, professional practice and academia. They were identified through a stakeholder analysis, presented in appendix 6.

Inclusion criteria

Participants were eligible to participate if they possessed all or some of the following practical knowledge in either: midwifery, midwifery education, research, therapies, healthcare services, staff experience or patient experience. Participants were also eligible if they had been listed as an author in at least one academic paper relevant to either

midwifery, psychological trauma, psychology, psychiatry or healthcare services. No exclusion criterion was applied. Inclusion criteria are shown in figure 6.

Figure 6: Delphi Study Participant Inclusion Criteria

Expert Panel Inclusion Criteria
Either: A listed author in at least one publication relevant to • Midwifery • Psychology • Psychological trauma • Psychiatry • Health care services And/or: Practical knowledge in • Midwifery • Midwifery education • Research • Therapies • Health services • Patient Experience • Staff experience

Participant recruitment

Participant recruitment for panellists began in September 2015. Key papers related to the subjects of midwifery work, psychological distress, online interventions and interventions designed to support mental wellbeing were screened for potential subject experts. A snowballing of the literature led to the scanning of reference lists and the identification of other key papers of relevance (Choong et al. 2014). The authors of these papers were then invited to participate in the study via email and social media contact with a formal invitation to become a part of the panel (Appendix 7).

It was decided that should less than 50 experts be recruited before the Delphi study commenced, an additional 50 people would be invited to participate in order to compensate for potential dropout rates and avoid a failure to achieve adequate panel numbers (n=30).

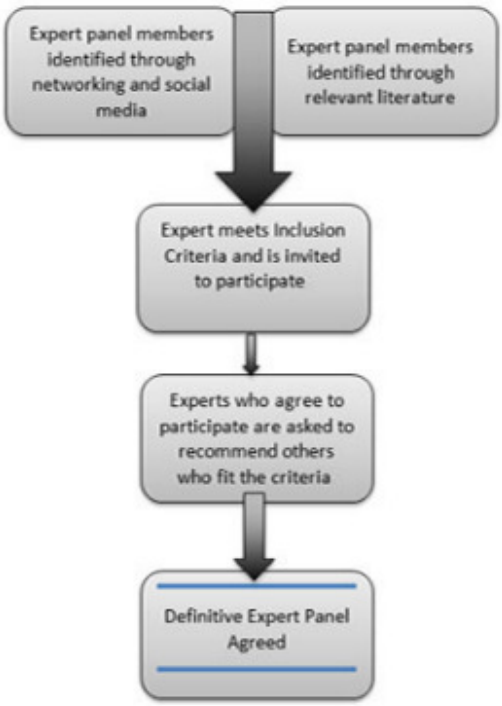
Social Network recruitment

It was anticipated that some experts recruited from the literature base may withdraw from the study during its course (Evers et al. 2005). Additionally, a literature based recruitment strategy alone may not have recruited the desired practical or clinical expertise in midwifery. Therefore, social media was also employed to recruit a wider variety of participants, and to compensate for potential dropout (Stewart, Sidebotham and Davis 2012). The researcher's social, academic and occupational networks were also consulted in order to identify potential experts who met the inclusion criteria. Suitable candidates received an email inviting them to participate in the Delphi study. In total, 185 experts were invited to participate.

Twitter is evidenced to be a highly effective tool for healthcare research recruitment (O'Connor et al. 2014). Twitter was used for research recruitment here due to its high-quality healthcare, research and academic communities in line with the study protocol, which is presented in appendix 18 and has been published elsewhere (Pezaro and Clyne 2015). Stakeholder groups identified in the stakeholder analysis were then asked to promote the study to their online followers. A link to a blog page with inclusion criteria, further information, support resources and an online survey was provided to facilitate this online recruitment (Pezaro 2015). Willing and suitable participants were then invited to express their interest in partaking in the study by contacting the researcher directly.

During this study, the research recruitment blog page was accessed 422 times. This blog page was also shared on Facebook 59 times, Linkedin 3 times and Twitter 47 times. Additionally, the blog page was shared to a further 236 unidentified websites by its readership. The destination of a further 77 shares via social media remain unknown. Figure 7 provides an overview of how experts were identified and recruited to participate within this study.

Figure 7: Delphi Panel Recruitment Process



Although participants remained anonymous throughout this study, some participants were keen to disclose their specific expert status. This research did not seek to verify the eligibility of each participant, participants simply consented to having the relevant expertise. The majority of participants who disclosed their expert status were either clinical and/or academic midwives. Other participants included psychiatrists, psychologists, healthcare, policy and midwifery leaders, and academic experts in the field of post-traumatic stress disorder, secondary trauma and psychological distress. Some experts also disclosed their country of origin as the United Kingdom, the United States of America, Australia, Nigeria, Israel, and Oman. However, the locations of each individual participant remain unknown.

Once experts had been identified, they were directed towards information about the aim and content of the Delphi Study. A formal invitation was also then disseminated (Appendix 7). Potential and recruited panel members were then asked to refer other suitable individuals to the study. This layer of recruitment aimed to eliminate any bias from

recruitment selection. This solicitation of nominations of appropriate field experts is also typically recommended as best practice in Delphi study design (Ludwig 1994).

Informed consent for all participants was obtained and collated as the first round of questioning began online. This included a consensual agreement to publish anonymised data and non-identifiable data results (Appendix 8). Participants were directed to appropriate support services both on and offline due to the sensitive nature of the subject matter. It was also specified that participants would receive copies of any publications which resulted from the study and a summary of outcomes.

Study Design

Achieving consensus is the primary aim of the Delphi Study, yet the measurement of consensus varies greatly. There is no firm agreement about the criteria for consensus within a Delphi study (Heiko 2012). Within this Delphi study, it was decided that a primary criterion of at least 60% of Delphi panel members must indicate a preference within 2 adjacent response points on a 7-point Likert scale for consensus to be reached. This scale was anchored at 'Not a priority' and 'Essential priority'. Any item could reach consensus at any point, whether at the higher or lower end of the scale. The presence of consensus in this study was specified in advance of data collection.

Rigid Delphi study designs have been criticised for their inability to allow their experts to elaborate on their opinions (Walker and Selfe 1996). Therefore, this Delphi design is a modified one (Beretta 1996, Habibi, Sarafrazi and Izadyar 2014), where the identity of experts remained unknown to the researcher, and free text response options accompany each statement put to panel members to provide experts with the opportunity to elaborate upon their opinions (Keeney, Hasson and McKenna 2001).

This 2-round Delphi study was conducted between the 9th of September and the 30th of November 2015. Accordingly, 39 questions about the design and delivery of an online intervention for midwives were posed to eligible participants over 2 rounds. Both rounds were completed online using Bristol Online Survey software and participants received anonymised feedback following both rounds. The aim of this study was to achieve

consensus in the design and delivery of an online intervention designed to support midwives in work-related psychological distress.

Development of questions in round one

Questions or 'statements' presented within the first round have been developed in response to the themes, literature and concepts which have emerged through chapters one, two and three. Questions from round 1 are presented in appendix 9. All statements are presented initially within appendixes 10 and 11. They are broadly themed around intervention design and practical inclusions, inclusions of therapeutic support and ethical inclusions. Whilst the development of these questions did not follow any specific method, they were peer reviewed in order to check for face validity prior to being presented to participants.

Firstly, as the components explored within chapter two may conflict with deeply entrenched values, and as such may hinder any further progress in developing this complex intervention (Craig et al. 2008), questions 1 to 5 were designed to achieve consensus about the provision of anonymity, confidentiality, amnesty and professional responsibilities online. These questions refer to signposting users to appropriate face-to-face support, reminding users of their professional codes of conduct, and confidentiality, anonymity and thus the provision of amnesty within this complex online intervention. Questions 18 and 19 also refer to email logins and online moderation. Although these may be seen as practical inclusions, they also refer to some of the ethical issues raised within chapter two. Questions 12 and 13 also refer to directing midwives toward alternate help and support, and other legal advice. These questions were also generated in response to the themes raised in chapter two. Such signposting and legal advice is also provided to other professional groups in healthcare by existing support interventions (Strobl et al. 2014).

Interactive learning components have been evidenced as being effective in supporting online users to better understand mental health (Brijnath et al. 2016). They have also been found effective in another intervention designed to support midwives in work-related psychological distress (McDonald et al. 2012, McDonald et al. 2013). This

intervention was identified within the systematic literature review presented in chapter three. As such, questions 6 and 7 were designed to relate to multimedia resources designed to assist midwives to recognise the signs and symptoms of psychological distress as a process. Similarly, questions relating to help seeking, sign posting and user assessments were related to the process of appraisal as guided by the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). Likewise, as self-management e-resources in mental health have the potential to be widely effective (Karasouli and Adams 2014, Lehr et al. 2016), questions 8 -11 related to the provision of online self-management techniques. Such self-management strategies have also been effective in another intervention designed to support midwives identified within the systematic literature review presented in chapter three (McDonald et al. 2012, McDonald et al. 2013). The question specifically relating to mindfulness also reflects the findings of chapter three, where three mindfulness interventions were found to be of benefit to midwives seeking support (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016).

Social support networks, peer support, networking and the sharing of experiences have also been suggested by the largest online survey of midwives as being required for midwives to feel safe, secure and satisfied in their working life (World Health Organization 2016). As online support communities or 'social networking' tools as they are defined in chapter one can be of particular benefit to those seeking psychological support (Wright 2016), questions 14-17 related to the sharing of personal experiences, a peer to peer discussion chat room and the communication of any work or home-based subjects of distress. These coping strategies can also be related to the 'coping strategies' component of the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). As the findings presented within the mixed-methods systematic review presented in chapter three demonstrate how some midwives can find it challenging to attend planned sessions or complete structured homework, question 20 refers to the flexibility of having access to an online support intervention whilst mobile.

Development of new questions for round two

Statements that did not achieve consensus in Round 1 were returned to participants in Round 2. In addition, 10 new statements were included in Round 2 on the basis of participant comments in Round 1. Again, whilst the development of these questions did not follow any specific method, they were peer reviewed in order to check for face validity prior to being presented to participants.

As some participants referred to the need to make an online intervention 'user friendly', question 10 referred to the creation of a familiar user interface, which may resemble other contemporary online platforms. As some participants referred to the provision of support being required in many parts of the world, question 11 referred to an online support intervention being available to midwives around the world. Questions 12 and 13 related to how such an online intervention should be moderated, as many participants were conflicted as to which approach may be most appropriate. As some participants expressed appreciation for the online intervention being available on a flexible basis, question 14 was expanded to ascertain whether or not the platform may be made available at all times. This need for flexibility in an intervention of this type is also reflected within the findings of the mixed-methods systematic review presented in chapter three.

Questions 15-18 were designed to achieve consensus as to how certain dilemmas may be best managed, as some participants expressed concerns for potential users who may be experiencing immediate crisis. As such, participants were asked to rate the priority of user assessments, data gathering, friends and family access and the identification of those at risk. Question 19 referred to the provision of a general statement in relation to professional codes of conduct, as some participants expressed moral discomfort in automatic reminders being repeatedly sent out to users. Again, these new questions posed in round two also reflect the ethical and practical issues raised in chapter two, and reflect the appraisal and coping components of the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010).

Procedure

Panellists were invited to read the participant information listed in appendix 7. Subsequently, panellists were invited to participate in completing the first and second rounds of this study by following an online link to rate the statements presented. Expert panellists were only sent further correspondence if they indicated an initial interest in participation. In the absence of any response to either of the invitations sent, it was assumed that the recipient no longer had an interest in participating, and therefore received no further correspondence.

Experts who indicated that they would like to participate within the study but did not respond to the first round were sent 2 reminders via email or social media contact. Similarly, those who participated in round 1 but did not respond to the second round of questioning were also sent 2 reminders via email or social media contact. In order to withdraw from the study, experts had to directly contact the researcher and explicitly state their withdrawal.

2 weeks were allocated for Delphi subjects to respond to each round of questioning in line with similar studies and recommendations (Hsu and Sandford 2007). In total, a 5-week interval between the initiation of the first round and the start of the second round of questioning was allocated to participants to respond. Following each round, those who participated were sent a participant report (Appendices 10 and 11). Prompting reminders were also sent to participants 1 week before each round began in order to maximise participation.

Round 1

Round 1 comprised a list of 20 statements relevant to the delivery, features, functionalities and components of an online intervention to support midwives in work-related psychological distress. Participants were asked to choose a number that best represented their response to each statement with a 7-point likert response scale. This scale was anchored at 'Not a priority' and 'Essential priority'. Two questions were given for each statement: 'Why did you choose this rating of priority?', followed by: 'Do you have any additional comments you would like to share?' Space for free text responses was provided after each question. Finally, panellists had the opportunity to suggest new questions to be put forward during the second round of questioning.

Round 2

The 66 participants who completed round 1 were invited to take part in this second round of questioning. All panellists received feedback on the panel's responses to Round 1. They were then asked to read and deliberate upon these results prior to being invited to participate within a second round of questioning. The report delivered to participants following Round 1 can be found in appendix 10. Statements that did not achieve consensus in Round 1 were returned to participants in Round 2. In addition, 10 new statements were included in Round 2 on the basis of participant comments in Round 1 that were not reflected by the content of an existing statement.

Respondents were again invited to provide comments through the provision of a free text response option for each item in this second questionnaire. They were also given the opportunity to disclose why they had chosen to mark each item with lower or higher priority within an open text field. A participant report, which outlined the results from round 2, was delivered to those experts who participated within this second round, and can be found in appendix 11.

Analysis

Responses placed upon the 7-point scale were calculated against the measurement of consensus set for this study. Any free text responses provided by participants to specific items were analysed via thematic analysis (Braun and Clarke 2006). All open text

responses were coded and then assigned to emergent themes in a succession of refinements. The themes and categorisations of statements were then revised and refined following an inspection and reflective discussion. This thematic analysis of qualitative open responses was presented within table format and feedback to panel members after each round. The authorship of statements remained unknown throughout.

The mean, minimum and maximum score for each item was calculated and reported to panel members as feedback after each round. Basic numerical outcomes were also presented to panellists as percentages, where either the presence or absence of consensus could be confirmed. Analysis reports and results for both round 1 and round 2 are presented within appendix 12 and 13 respectively.

Results

Of those who were invited to participate in the study 35.7% (66/185) completed Round 1, and 66.6% (44/66) of those who contributed to Round 1 completed Round 2. Of the 20 statements posed during Round 1, 11 statements achieved consensus and 9 did not. Of the 19 questions posed within Round 2, 7 statements achieved consensus and 12 did not, giving a total of 18 consensus statements from the 30 statements posed to panellists. In total, 1604 free text responses were collected and categorised into 2446 separate statements. One free text response was removed in order to maintain confidentiality. An overview of results is presented in Figure 8. Data from the thematic analysis of open text responses are presented within appendix 14. Detailed summaries of the numeric results from rounds 1 and 2 are presented in tables 7 and 8 respectively.

Figure 8: Overview of Round 1 and 2 statements, themes and statements achieving consensus

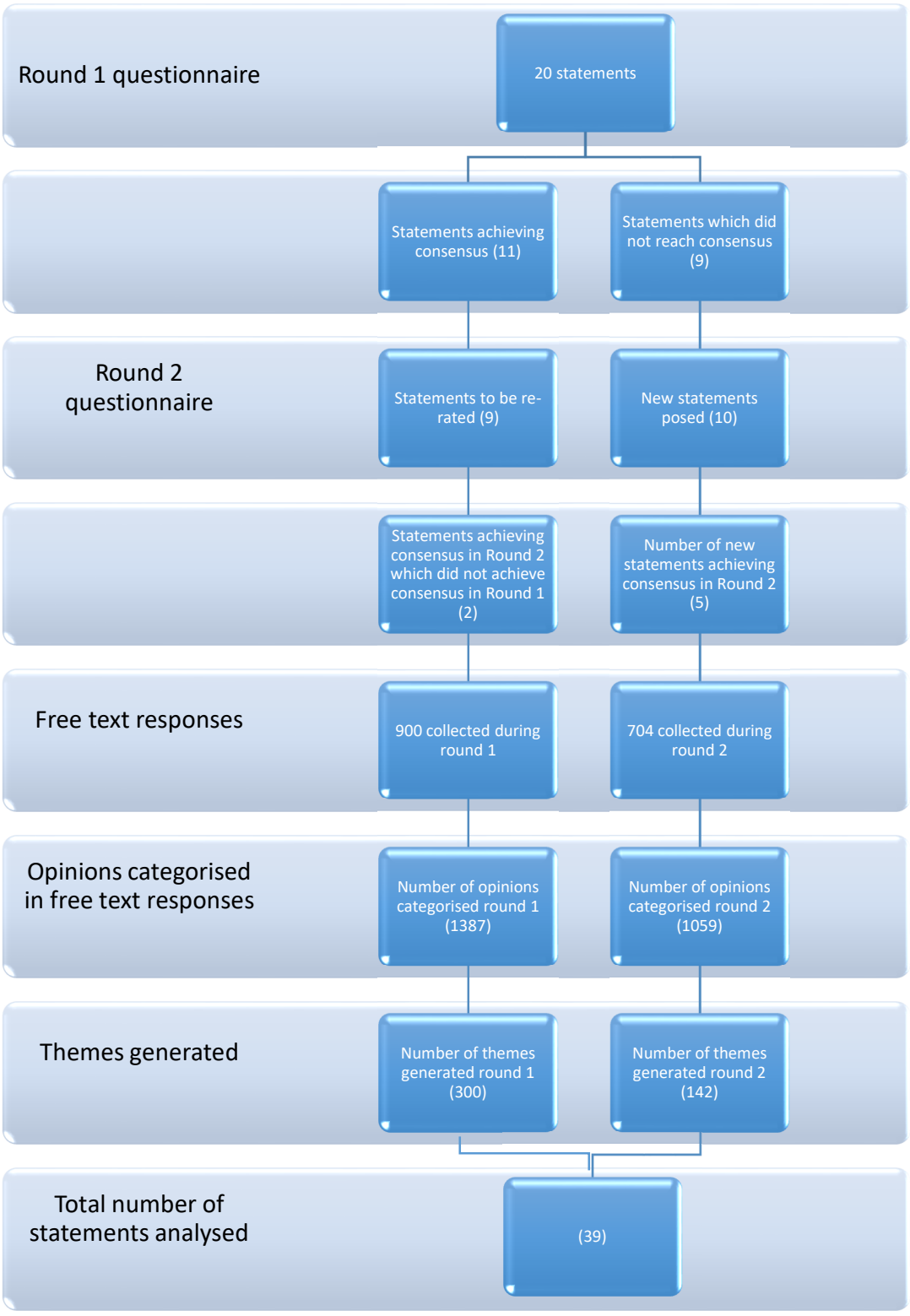


Table 7: Detailed summary of numeric results for Delphi study - Round 1

Statement	Consensus achieved	% of consensus	Minimum % score	Maximum % score
Ethical inclusions				
Confidentiality for all platform users and service users in all matters of discussion	Yes (high/essential priority)	90.90%	Not a priority/low priority/0/66 (0%)	Essential priority 54 /66 (81.8%)
Anonymity for all platform users and service users in all matters of discussion	Yes (high priority)	84.90%	Not a priority/low priority/0/66 (0%)	Essential priority 39/66 (59.1%)
Amnesty for all platform users in that they will not be referred to any law enforcement agencies, their employer or regulatory body for either disciplinary or investigative proceedings in any case	No	N/A	Low/somewhat a priority/3/66 (4.5%)	Essential priority 22/66 (33.3%)
Prompting platform users automatically to remind them of their responsibilities to their professional codes of conduct.	No	N/A	Somewhat a priority/0/66 (0%)	Essential priority 18/66 (27.3%)
Prompting platform users automatically to seek help, by signposting them to appropriate support	Yes (high/essential priority)	78.80%	Not a priority/low priority/somewhat a priority/0/66 (0%)	Essential priority 31/66 (47%)
Inclusions of therapeutic support				
The inclusion of Web-based videos, multimedia resources, and tutorials which explore topics around psychological distress	Yes (moderate/high priority)	68.20%	Not a priority/low priority/somewhat a priority/1/66 (1.5%)	High priority 27/66 (40.9%)
The inclusion of informative multimedia designed to assist midwives to recognize the signs and symptoms of psychological distress	Yes (high/essential priority)	71.30%	Somewhat a priority/0/66 (0%)	High priority 26/66 (39.4%)
The inclusion of multimedia resources which disseminate self-care techniques	Yes (high/essential priority)	74.20%	Low priority/0/66 (0%)	High Priority 29/66 (43.9%)
The inclusion of multimedia resources which disseminate relaxation techniques	Yes (moderate/high priority)	65.10%	Not a priority/low priority/somewhat a priority/1/66 (1.5%)	Moderate priority 23/66 (34.8%)
The inclusion of mindfulness tutorials and multimedia resources	Yes (moderate/high priority)	66.70%	Low priority/0/66 (0%)	High priority 27/66 (40.9%)
The inclusion of Cognitive Behavioural Therapy (CBT) tutorials and multimedia resources	Yes (moderate/high priority)	60.60%	Somewhat a priority/0/66 (0%)	Moderate Priority

				22/66 (33.3%)
The inclusion of information designed to inform midwives where they can access alternative help and support	Yes (high/essential priority)	86.40%	Not a priority/low priority/somewhat a priority/0/66 (0%)	Essential priority 31/66 (47%)
The inclusion of information designed to inform midwives as to where they can access legal help and advice	No	N/A	Not a priority/low priority/somewhat a priority/1/66 (1.5%)	Essential Priority 24/66 (36.4%)
Giving platform users the ability to share extended personal experiences for other platform users to read	No	N/A	Not a priority/1/66 (1.5%)	Moderate priority 17/66 (25.8%)
The inclusion of a Web-based peer-to-peer discussion chat room	No	N/A	Somewhat a priority/2/66 (3%)	High Priority 20/66 (30.3%)
Giving platform users the ability to communicate any work or home-based subjects of distress	No	N/A	Somewhat a priority/1/66 (1.5%)	Moderate priority/high priority 16/66 (24.2%)
Intervention design and practical inclusions				
An interface which does not resemble NHS, employer or other generic healthcare platforms	No	N/A	Low priority/somewhat a priority/2 (3%)	Essential priority 18/66 (27.3%)
A simple, anonymized email log-in procedure which allows for continued contact and reminders which may prompt further platform usage	No	N/A	Low priority/1 (1.5%)	Moderate priority 20/66 (30.3%)
An automated moderating system where “key words” would automatically initiate a moderated response	No	N/A	Not a priority/low priority/3 (4.5%)	Neutral 21/66 (31.8%)
Mobile device compatibility for platform users	Yes (high/essential priority)	71.20%	Low priority/somewhat a priority/0 (0%)	Essential priority 27/66 (40.9%)

Table 8: Detailed summary of numeric results for Delphi study - Round 2

Statement	Consensus achieved	% of consensus	Minimum % score	Maximum % score
Ethical inclusions				
Amnesty for all platform users in that they will not be referred to any law enforcement agencies, their employer or regulatory body for either disciplinary or investigative proceedings in any case	No	N/A	Not a priority/2/44 (4.5%)	High priority 9/44 (20.5%)
Prompting platform users automatically to remind them of their responsibilities to their professional codes of conduct	No	N/A	Somewhat a priority/2/44 (4.5%)	High priority 9/44 (20.5%)
Inclusions of therapeutic support				
The inclusion of information designed to inform midwives as to where they can access legal help and advice	Yes (high/essential Priority)	65.90%	Not a priority/0/44 (0%)	High priority 17/44 (38.6%)
Giving platform users the ability to share extended personal experiences for other platform users to read	No	N/A	Not a priority/0/44 (0%)	High priority 11/44 (25%)
The inclusion of a Web-based peer-to-peer discussion chat room	Yes (moderate/high priority)	63.60%	Not a priority/1/44 (2.3%)	Moderate priority 15/44 (34.1%)
Giving platform users the ability to communicate any work or home-based subjects of distress	No	N/A	Not a priority/1/44 (2.3%)	Moderate/essential priority 11/44 (25%/25%)
Intervention design and practical inclusions				
An interface which does not resemble NHS, employer or other generic healthcare platforms	No	N/A	Not a priority/1/44 (2.3%)	Essential priority 13/44 (29.5%)
A simple, anonymized email log-in procedure which allows for continued contact and reminders which may prompt further platform usage	No	N/A	Not a priority/low Priority/0/44 (0%)	High priority 14/44 (31.8%)
An automated moderating system where “key words” would automatically initiate a moderated response	No	N/A	Low priority/2/44 (4.5%)	Neutral 13/44 (29.5%)
New items for consideration				
An interface which resembles and works in a similar way to current popular and fast pace social media channels (eg, Facebook)	No	N/A	Not a priority/0/44 (0%)	Neutral 12/44 (27.3%)
The inclusion of midwives from around the world	No	N/A	Not a priority/3/44 (6.8%)	Moderate priority 11/44 (25%)

Proactive moderation (ie, users are able to block unwanted content and online postings are “pre-approved”)	Yes (high/essential priority)	61.40%	Not a priority/1/44 (2.3%)	High priority 15/44 (34.1%)
Reactive moderation (ie, users are able to report inappropriate content to a system moderator for removal)	Yes (high/essential priority)	70.50%	Not a priority/1/44 (2.3%)	High priority 16/44 (36.4%)
24/7 availability of the platform	Yes (high/essential priority)	84.10%	Not a priority/low priority/0/44 (0%)	Essential priority 25/44 (56.8%)
The implementation of an initial simple user assessment using a psychological distress scale to prompt the user to access the most suitable support available	Yes (moderate/high priority)	70.40%	Not a priority/somewhat priority/1/44 (2.3%/2.3%)	High priority 25/44 (38.6%)
The gathering of anonymized data and concerns from users, only with explicit permission, so that trends and concerns may be highlighted at a national level.	No	N/A	Not/low/somewhat a priority/2/44 (94.5%)	Essential priority 15/44 (34.1%)
Access for a midwife's friends and family members	No	N/A	Essential priority/0/44 (0%)	Not a priority 17/44 (38.6%)
The follow up and identification of those at risk	Yes (high/essential priority)	63.70%	Low/somewhat a priority/1/44 (2.3%)	Essential priority 16/44 (36.4%)
The provision of a general statement about professional codes of conduct and the need for users to keep in mind their responsibilities in relation to them	No	N/A	Not a priority/1/44 (2.3%)	Essential priority 12/44 (27.3%)

Thematic analysis results

Raw data for round 1 and round 2 are presented within appendix 12 and 13 respectively. Spelling and grammatical mistakes made by the participants have been corrected accordingly.

Ethical inclusions

Confidentiality and anonymity were both considered to be an essential priority, with one participant describing how “some midwives would be fearful of people finding out they were finding it difficult to cope and would therefore seek anonymity to feel safe to access support” and another revealing how “anonymity would enable honesty and a true space to unburden” as “a confidential forum allows discussion to take place without feeling judged”. However, the corollary to confidentiality and anonymity, amnesty, is a source of tension, both within some participants who are ambivalent about amnesty and between participants with different perspectives.

Panellists remained largely conflicted in opinion about the provision of amnesty. Consequently, consensus was not achieved for the statement regarding amnesty in either Round 1 or Round 2. One comment illustrates this conflict well: “amnesty is an ethical issue, particularly relating to criminal matters, however without it midwives may not feel able to disclose their concerns causing distress”. Polarised views were also apparent, as one comment suggests that “people are not going to be fully revealing if they believe they will suffer as a result!” and another participant expressed concern that this statement “almost suggests that there may be grounds for this route to be considered”. Finally, one participant commented that “unless amnesty is assured confidentiality/anonymity won't be maintained”.

Opinion remained divided throughout both rounds of questioning about whether an online intervention designed to support midwives should remind users of their professional codes of conduct. Similarly, experts did not agree about whether the provision of a general statement about professional codes of conduct and the need for users to keep in mind their responsibilities in relation to them should be prioritised or not. Although participants expressed a loyalty to their professional codes of conduct, they also conveyed concerns about whether this may deter midwives from speaking openly and/or seeking help. There was also some concern that reminders about codes

of conduct may be seen as condescending. Experts were unable to agree upon whether this would inhibit the functionality of effective support or should be provided to reinforce the professional responsibilities of the midwife.

In terms of opening the online intervention up to global midwifery populations, many experts highlighted the challenges in relating to the various cultural and contextual differences across the globe. However, many acknowledged the need for midwifery support all over the world. Equally, when panellists were asked to consider whether an online intervention designed to support midwives in work-related psychological distress should prioritise access for a midwife's friends and family members, a consensus of opinion could not be reached. In this case, experts highlighted that midwives' may lose their anonymity if friends and family members were permitted access to the intervention. Many open text responses expressed the need to prioritise access to the intervention for midwives only. One in particular summarises that "while family and friends provide important support, the needs of the midwife should remain paramount."

Experts expressed a need to prioritise the implementation of an initial simple user assessment using a psychological distress scale to prompt the user to access the most suitable support available. This was largely "as individuals may not realise that they are in psychological distress "or "don't recognise the signs and symptoms of stress, PTSD, depression or anxiety". However, many remained unsure about what may trigger a response, how the user may be prompted, and what support may then be offered. Additionally, experts stated that midwives may feel uncomfortable with this level of screening. This point was also one of the reasons given by panellists reluctant to prioritise the gathering of anonymised data and concerns from users, even with explicit permission. Where many experts saw the benefits of capturing national trends, with one comment summarising that it may be "critical that trends are identified and strategies developed to address those trends at a national level", others were wary that if this was the case, midwives may be reluctant to engage.

Experts agreed that the intervention should prioritise the follow-up and identification of those at risk. However, there were requests to clarify the definition of what may classify someone as being "at risk". Some panel members suggested that "if suicidal behaviour is conveyed through the postings" or if there is "talk of harming someone",

those individuals may be identified as being “at risk”. Yet many open text responses illuminated the difficulties in following up anonymous users. Some experts were also unsure about how this particular component may be facilitated. Additionally, others purported that this should not be the responsibility or purpose of this particular online platform.

The expert panel concurred that midwives using the platform should be automatically prompted to seek help, by signposting them to appropriate support. However, some panellists questioned how this may be organised, what types of support may be on offer, and whether or not this provision may encourage users to pathologise normal reactions to certain types of events.

Inclusions of therapeutic support

In terms of the nature of the support within an online intervention to support midwives, the expert panel agreed that priorities include web based videos, multimedia resources and tutorials which explore psychological distress and assist midwives to recognise the signs and symptoms of psychological distress. One comment which illustrates a widely-held belief was that “midwives often feel guilty for catching up on sleep, having time out watching TV, gently exercising with friends etc.” As such, it was also agreed that an online intervention should prioritise resources which disseminate self-care techniques and Cognitive Behavioural Therapy (CBT) tutorials through a range of online media sources. Largely, it was inferred that this online intervention should establish itself as a "one stop shop”.

Expert participants also agreed that midwives in distress should be offered information designed to inform them where they can access alternative help and support. The most frequent reason given for this was the need for provision of choice. Equally, there was consensus that an online intervention should prioritise the inclusion of information to inform midwives about where they can access legal help and advice. During Round 1, participants noted that midwives could already source this information from trade unions such as the Royal College of Midwives (RCM), and may be further distressed by the thought of needing legal assistance. Yet one comment in particular highlighted the notion that “we live in a litigious and unforgiving world”. However, during Round 2, experts noted that midwives may need a wider range of

legal information available to them in order to be prepared should a need arise. One comment illustrated this by reiterating that “any help and advice is welcome”.

When expert panellists were asked whether an online intervention to support midwives should prioritise giving users the ability to share extended personal experiences for other platform users to read, no consensus of opinion was reached. Open text responses gravitated towards concerns relating to breaches in confidentiality, risk of misuse and the need for active moderation. However, a number of responses highlighted the potential cathartic and therapeutic benefits of both reading and writing personal experiences, providing opportunities for reflection, sharing, learning and fellow feeling with others.

Although experts did not agree to prioritise the inclusion of a web-based peer to peer discussion chat room during Round 1, within Round 2, this item became a moderate to high priority inclusion. While many experts expressed a need for the appropriate moderation of an online chat room, the benefits of peer based discussion were highlighted as a key component of support. One comment summarises these thoughts by stating that “sharing experiences and getting feedback from peers who have experienced similar situations is very helpful”. Crucially, it was also highlighted that this chat room “would require high volume site traffic to be viable and sustainable”. When asked about topics of discussion within the chat room, experts did not reach a consensus as to whether the chat room should give users the ability to communicate any work or home-based subjects of distress. However, these two subjects were seen as being intertwined.

Intervention design and practical inclusions

Regarding the aesthetics of the online intervention, opinions remained divided about whether the intervention should, or should not, resemble National Health Service (NHS), employer or other generic healthcare platforms. Although the panel acknowledged that the intervention should look trusted, professional and official, they were also wary that, should the intervention resemble an official healthcare organisation, midwives may feel unable to speak openly. One particular comment defines opinion in that “any resemblance to NHS etc.… could deter people from using the platform”, however, this same panellist also felt that the intervention “needs to resemble a clean professional image”. Additionally, panellists remained divided in

opinion and wary of an anonymised email login procedure which allows for continued contact and reminders which may prompt further platform usage. Although experts favoured the use of anonymity in log in procedures, some felt that prompting use may cause further distress.

In terms of accessibility and ease of use, experts agreed that making the intervention available to midwives in work-related psychological distress 24 hours a day and via mobile access should be made high to essential priorities. However, experts did not agree upon whether an online intervention to support midwives in work-related psychological distress should prioritise an interface which resembles and works in a similar way to current popular and fast paced social media channels: e.g. Facebook. In this case, many free text responses alluded to the fact that Facebook and other social media channels are perceived as risky to use by midwives. Nevertheless, many other comments suggested that emulating the familiarity of a known platform may promote an inherent ability for midwives to engage with the intervention more sinuously. Ultimately, one particular comment summarises that “ease of use and familiarity for most users will encourage engagement”.

The importance of effective moderation remained a recurrent theme throughout this study. Experts agreed that both proactive moderation (i.e., users are able to block unwanted content and online postings are 'pre-approved') and reactive moderation (i.e., users are able to report inappropriate content to a system moderator for removal) should be made a high to essential priority. One comment in particular highlights one recurring theme in that “the platform needs to be regulated to avoid inappropriate posts and language”.

Other interventions of this nature have employed an automated moderating system where ‘key words’ would automatically initiate a moderated response. However, this group of experts remained divided about whether this should be prioritised in an online intervention to support midwives. Many panellists cited the importance of regulation, however some were unsure about how this particular provision may work in the real world. Additionally, fears were raised that this provision may make the intervention seem impersonal. Overall, it was the principal judgment of this group that, easy 24-hour mobile access and “an easy log in and easy to use interface couldn't be more essential”.

Discussion

This Delphi study has built expert consensus regarding the priorities in relation to the delivery, features, functionalities and components of an online intervention to support midwives and/or student midwives in work-related psychological distress. Statements that were endorsed tended to favour those which enabled knowledge acquisition, ease of use, ongoing support, skill development, and human interaction. The highest priority scores were given to the provisions of anonymity (84.9%) and confidentiality (90.9%). For those items which achieved consensus, the lowest priority scores were given to the provisions of CBT resources (60.6%) and proactive moderation (61.4%). Conclusively, the expert panel agreed that each statement should be made at least a moderate priority.

Overall, the themes generated by this study were the reluctance of midwives to speak openly and/or seek help for fear of retribution, the need for both anonymity and confidentiality at all times, ease of use, effective moderation and the necessity to help and support midwives in work-related psychological distress. Challenges remain in how and whether or not to provide confidentiality and anonymity in facilitating effective online support for midwives in distress.

Interpretation of findings

Based on quantitative and qualitative responses, participants in this study do not readily differentiate between confidentiality and anonymity in this particular context. Their reasons or justifications for the requirement to have both confidentiality and anonymity are broadly very similar. Ethicists and intervention developers may differentiate between these two concepts but this group do not. There is no meaningful difference between confidentiality and anonymity for this stakeholder group, which largely comprises the potential end users of the proposed online resource.

When both confidentiality and anonymity are in place, their corollary, amnesty becomes apparent. Many of the expert panel members cited that midwives would not speak openly for fear of stigma and retribution. Indeed, these findings have been verified within other studies where midwives reported stigma, and a perceived punitive response to face-to-face discussions concerning work-related traumas (Currie

and Richens 2009, Robins 2012, Sheen, Spiby and Slade 2016, Young, Smythe and Couper 2015). As such, many of the expert panel members saw amnesty as an essential provision in supporting midwives to seek help. Other panel members were opposed to the provision of amnesty, either because they feared that this would be in direct conflict with moral or professional duties and obligations, or because they favoured immediate accountability for the direct protection of the public and patients. A number of panel members recognised both sides of this argument, and were therefore unable to decide their position in this case. This moral conflict is reflected in the many confidential health practitioner services that exist for doctors in distress (Braquehais et al. 2015, Brooks et al. 2014, Jones and Davies 2016). In these cases, the public recognise the value in offering impaired physicians identity protection for the purpose of remediation, yet they also call for open reporting where risks to patients and the public are identified within the public sphere.

The primary concern for those who are ambivalent or who are opposed to amnesty was the risk of harm to third parties by midwives; both preventing future harm and accountability for harm that has already occurred. Satisfying this concern will be essential for the acceptance of an online resource for midwives experiencing psychological distress. One element of negotiation may be to encourage those in distress to self-disclose episodes of impairment with the support of the online community. This idea is supported by one free text response which purports that "ideally an online platform should encourage the professional themselves to take action if appropriate". This outcome could result in more midwives coming forward in help seeking, for the benefit of maternity services as a whole.

It is clear that this expert group feel that a range of multimedia resources in relation to help seeking, diagnostic criteria, therapeutic and practical inclusions should be prioritised in the development of an online intervention to support midwives. Future developments should consider becoming a "one stop shop" for midwives in relation to this finding. Going further, it may be prudent to develop online interventions with the functionality to incorporate a range of midwifery populations, global healthcare workforces and other groups of clinical professionals as a prospective future growth model evolves. This concept is also supported by an expert response, suggesting that "in developing this platform for a specific group of midwives, a future goal may be to

adapt it for other specific groups once this project is functioning and any difficulties have been eliminated".

In developing an effective online intervention to support midwives in work-related psychological distress, the practicalities of galvanising a large user base, evolving a robust system of moderation and rousing the support of professional and regulatory bodies will be vital in securing its sustainability. Gaining the trust of midwives in distress and engaging them in using a safe online intervention may enable this one solution to flourish and improve the health of midwives, which crucially may increase protection for the public, secure the long-term health of midwives and increase safety for maternity services. This study will be integral to the development process of any online intervention designed to support midwives, as the application of this data to the development process optimises the likelihood of accomplishing an efficacious intervention overall.

Strengths and Limitations

Experts in the subject areas of both e-mental health and m-health were invited via the academic emails provided in recently published research papers to participate within this study. Midwives, psychologists, psychiatrists, other physicians and academic experts were also invited to participate. Whilst this Delphi study has harnessed the opinions of this diverse group of experts on a practice-related problem, it has been unable to verify the expert status of all participants due to the provision of participant anonymity. Therefore, some fields of expertise may not have been reflected in the data.

Although the decision to allow respondents to be completely anonymous in a Delphi study is an unusual one, it was feared that participants would feel unable to be completely open and honest without the provision of anonymity in place. As such, this course of action has undoubtedly impacted upon the confirmation of the participants' expertise, especially as the expertise of participants was not confirmed by the researcher, leaving participants merely to consent to having the relevant expertise.

Additionally, and unlike many Delphi studies, the feedback provided after each round did not include each participant's own previous response. This was again due to the provision of anonymity afforded to participants. Therefore, Participants were unable

to compare their own response to the groups response. Additionally, there has been a significant participant dropout rate between the 2 rounds. Therefore, the change in item endorsement may have been influenced by the different participants that remained in the study. This is a limitation of this study, but one that it is not possible to explore.

Though response rates may be deemed relatively low (35.7% and 66.6% respectively), these response rates are similar to those found in other Delphi studies (Brouwer et al. 2008, De Vet et al. 2005). Moreover, the Delphi technique relies upon the opinions of those recruited, yet its methodology requires empirical measures to determine consensus. The presence of consensus in this study has been determined empirically and was specified in advance of data collection.

Conclusions

This chapter has reported the results of a 2-round Delphi study to achieve expert consensus about the delivery, features, functionalities and components of online interventions to support midwives in work-related psychological distress. This study provides new evidence in relation to some of the key priorities for the development of such interventions. However, some practical, ethical and moral challenges remain unresolved. Future research has the opportunity to use this evidence to turn the vision of online support for midwives in distress into practice.

Chapter Five: Discussion

The purpose of this thesis was to present a case for the development of an online intervention to support midwives in work-related psychological distress. The motivation for this research was driven by personal experience, a desire to reduce psychological distress in midwifery populations, and, in turn, provide safer and higher quality maternity services. This research has been underpinned by the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010), and the MRC framework for developing and evaluating complex interventions (Craig et al. 2008).

Chapter one provided a narrative review of the literature in relation to the nature of work-related psychological distress in midwifery populations. This chapter provided a context for this research, set out the causes, consequences and prevalence of work-related psychological distress in midwifery populations, and led to the development of three overarching research questions:

1. What are the ethical considerations in relation to the provision of online interventions to support midwives and/or student midwives in work-related psychological distress?

2. a) What interventions have been developed to support midwives and/or student midwives in work-related psychological distress? and b) What are the outcomes and experiences associated with the use of these interventions?

3. What are the areas of expert consensus in relation to the delivery, features, functionalities and components of an online intervention to support midwives and/or student midwives in work-related psychological distress?

Chapter two explored ethical considerations in relation to online interventions to support midwives by conducting a critical review of the literature. This critical review addressed research question one. Subsequently, a systematic mixed-methods review presented in chapter three examined the outcomes and experiences associated with interventions for midwives and student midwives in work-related psychological distress. This research addressed research question 2. Lastly, and in order to address

question 3, a 2-round Delphi study was presented within chapter four. This research sought consensus from an expert panel in relation to the priorities for the delivery, features, functionalities and components of an online intervention to support midwives in work-related psychological distress.

This final chapter provides a synopsis of how this original research makes a significant and novel contribution to knowledge, makes a case for the development of an online intervention designed to support midwives in work-related psychological distress and answers the research questions presented. This chapter also provides a summary of findings, describes how this research relates to theory and the MRC framework for developing and evaluating complex interventions (Craig et al. 2008), and a section on personal reflexivity. Additionally, the strengths and limitations of this research are discussed, and new areas for future research are proposed.

Summary of findings

The narrative review of the literature in relation to the nature of work-related psychological distress in midwifery populations presented within chapter one identified 30 papers outlining the sources, nature and prevalence of work-related psychological distress in global midwifery populations. Findings showed that midwives from Nigeria, America, Ireland, the United Kingdom, Australia, France, Poland, Croatia, Israel, Italy, Japan, Uganda, Turkey and New Zealand can experience both organisational and occupational sources of distress.

Causes of psychological distress can include hostile behaviour towards staff, either from other staff or patients, workplace bullying, toxic organisational cultures, medical errors, traumatic 'never events', critical incidents, occupational stress, workplace suspension, whistleblowing, investigations via professional regulatory bodies and employers, and/or pre-existing mental health conditions. The consequences of psychological distress in midwifery populations include death by suicide, death anxiety, depression, burnout, depersonalisation, compassion fatigue, shame, guilt, substance abuse disorders, and symptoms of self-destructive and unethical behaviour. This research has been published, in part, elsewhere (Pezaro et al. 2015).

The critical review of the literature presented within chapter two identified 9 papers which were examined in order to identify and explore the ethical considerations in

relation to providing midwives in distress with confidential and anonymous online support. This review concluded that the principles of confidentiality, anonymity and amnesty should be upheld in the pursuit of the greatest benefit for the greatest number of people (Pezaro, Clyne and Gerada 2016).

The systematic mixed-methods review presented within chapter three found that no evidence-based online interventions for midwives in work-related psychological distress are currently available (Pezaro, Clyne and Fulton 2017). However, all of the studies reviewed reported both personal and professional benefits for midwives who engaged in mindfulness sessions, work-based resilience workshops partnered with a mentoring programme and clinical supervision offline. Nevertheless, research studies were limited to the western world, and some participants were unable to fully engage with these targeted interventions. Moreover, none of these studies were rated as high-quality evidence.

A Delphi study with 66 midwives and other subject experts has been reported within this thesis (Pezaro and Clyne 2016). Presented in chapter four, this research concluded that the future development of an online intervention to support midwives in work-related psychological distress should most highly prioritise confidentiality and anonymity. These particular findings reflect the conclusions presented within other recent research, where doctors also report that their engagement with any psychological support depended upon the promise and certainty of confidentiality (Bianchi, Bhattacharyya and Meakin 2016). The broader findings within this study provide evidence into the requirements, preferences and priorities of experts in relation to work-related psychological distress in midwifery populations.

Within this Delphi study, although participants expressed enthusiasm for the development of this online intervention, they also stressed that there would be a need for effective moderation within an online discussion forum, along with 24-hour mobile access. Participants also reported that additional legal, educational, and therapeutic components should be available within an online intervention designed to support midwives. As the users of such an online intervention may be distressed, these experts indicated that midwives should also be offered a simple user assessment to identify those people deemed to be at risk of either causing harm to others or experiencing

harm themselves. This would be done in order to direct those in need towards appropriate support.

This research was conducted in order to answer three specific research questions and present a case for the development of an online intervention designed to support midwives in work-related psychological distress. In the next section, the results of this research are used as evidence to present a case for the development of such an online intervention designed to support midwives in work-related psychological distress.

Presenting the case for the development of an online intervention designed to support midwives in work-related psychological distress

In response to the overarching research enquiry, and the 3 specific research questions assigned to chapters 2, 3 and 4, it is important to ascertain whether or not there is a case for this online intervention, and If so, what that case is, and to what extent it is supported. In order to comprehensively describe the proposed intervention for which this thesis has made a case for, the template for intervention description and replication (TIDieR) checklist and guide has been employed (Hoffmann et al. 2014). This checklist and guide is presented in table 9, and has been completed alongside the supporting evidence for each component. This table also reports how each item relates to relevant theory.

Table 9: Proposed online intervention to support midwives in work-related psychological distress

TIDieR item	Item	Evidence	Related theory base
Brief name of intervention	The Staff Health and Wellbeing (SHAW) Centre	-Findings from chapter one establish that this is an intervention for midwifery 'staff' - Delphi study findings suggest that the intervention should be a 'one stop shop'	N/A
Why: Goal of the elements essential to the intervention	For Midwives: -Identify work-related psychological distress -Manage work-related psychological distress -Reduce work-related psychological distress -Cope following episodes of work-related psychological distress	-Delphi study findings -Critical literature review findings -Systematic review results -Findings from chapter one	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
What Materials (Components)	The inclusion of Web-based videos, multimedia resources, and tutorials which explore topics around psychological distress	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of informative multimedia designed to assist midwives to recognise the signs and symptoms of psychological distress	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of multimedia resources which disseminate self-care techniques	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of multimedia resources which disseminate relaxation techniques	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of mindfulness tutorials and multimedia resources	-Delphi study results - Systematic review results -(Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016)	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of Cognitive Behavioural Therapy (CBT) tutorials and multimedia resources	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	The inclusion of information designed to inform midwives where they can access alternative help and support	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping

	The inclusion of information designed to inform midwives as to where they can access legal help and advice	-Delphi study results	The revised transactional model of occupational stress and coping: - Appraisal -Coping
	Social networking tool: The inclusion of a Web-based peer-to-peer discussion chat room	-Delphi study results -(Huang 2016, Li et al. 2015, Oh, Ozkaya and LaRose 2014) -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Outcomes -Coping
	Self-management exercises and decision aids	(Lehr et al. 2016) -Chapter one results	-Components which have been incorporated in other online interventions, rooted within the transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010) The revised transactional model of occupational stress and coping: - Appraisal -Coping -Outcomes
	Online self-monitoring wellbeing and gratitude diaries	(Cheng, Tsui and Lam 2015) -Chapter one results	
	Audio-narrated videos and graphics designed to promote goal setting, problem-solving and effective time management	(Billings et al. 2008) -Chapter one results	
	Positive psychology exercises	(Feicht et al. 2013) -Chapter one results	
What Procedures (delivery, features and functionalities)	Confidentiality for all platform users and service users in all matters of discussion	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: -Appraisal -Coping
	Anonymity for all platform users and service users in all matters of discussion	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping
	Prompting platform users automatically to seek help, by signposting them to appropriate support	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping
	Mobile device compatibility for platform users	-Delphi study results	The revised transactional model of occupational stress and coping: -Coping
	Proactive moderation (ie, users are able to block unwanted content and online postings are “pre-approved”)	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping
	Reactive moderation (ie, users are able to report inappropriate content to a system moderator for removal)	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping
	24/7 availability	-Delphi study results -Critical literature review results -Systematic review results	The revised transactional model of occupational stress and coping: -Coping
	The implementation of an initial simple user assessment using a psychological distress scale to prompt the user to	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping

	access the most suitable support available		-Outcomes
	The follow up and identification of those at risk	-Delphi study results -Critical literature review results	The revised transactional model of occupational stress and coping: - Appraisal -Coping -Outcomes
How	Online delivery	-Chapter one results -Delphi study results -Critical literature review results -Systematic review results	The revised transactional model of occupational stress and coping: -Coping
Tailoring	Individual-focused	-Chapter one results -Systematic review results - (Foureur et al. 2013, McDonald et al. 2012, McDonald et al. 2013, van et al. 2015, Wallbank 2010, Warriner, Hunter and Dymond 2016).	Individual-focused online interventions, rooted within the transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Williams et al. 2010). The revised transactional model of occupational stress and coping: -Coping - Appraisal -Outcomes
	'One stop shop'	-Delphi study results	The revised transactional model of occupational stress and coping: -Coping - Appraisal -Outcomes

This comprehensive description of the intervention proposed in table 9, demonstrates how each chapter within this thesis has contributed evidence toward making a case for the proposed online intervention. In this instance, chapter one provides a strong case for the development of online support for midwives in work-related psychological distress by presenting robust evidence in relation to the prevalence, causes, consequences and sources of work-related psychological distress in midwifery populations. Chapter one also secures the case for an individual-focused intervention, which encompasses self-management exercises and decision aids, wellbeing and gratitude diaries, goal setting, problem-solving, effective time management and positive psychology exercises by presenting compelling evidence from the literature in relation to other theory-based interventions (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010).

As chapter one presents a wide range of evidence and original conclusions, such findings can be credited with providing a 'valuable contribution' to the strength of the overall case presented in this thesis (Green, Johnson and Adams 2006). This chapter also builds upon previous research done in the field of work-related psychological distress in healthcare professions, by focussing on a previously under-researched population; midwives.

The findings from the critical literature review presented in chapter two provided evidence in support of providing confidentiality and anonymity for midwives seeking support online. Furthermore, the findings from the Delphi study presented in chapter four also suggest that midwives, along with other key stakeholders would want to prioritise anonymity and confidentiality in an online intervention designed to support them. Indeed, the highest priority scores were given to the provisions of anonymity (84.9%) and confidentiality (90.9%) in this case. Whilst these findings strengthen the ethical arguments presented in chapter two, Delphi study participants did not reach consensus about whether or not a resulting amnesty should be permitted in an online environment. Therefore, the findings presented in chapters two and four in relation to the provision of confidentiality, anonymity and amnesty in an online intervention to support midwives in work-related psychological distress point to neutral conclusions. Whilst there is a strong case for the provision of confidentiality and anonymity, there is a weaker case for amnesty in this instance. This presents the research community with

new knowledge. Nevertheless, should this proposed intervention permit anonymity and confidentiality as indicated, amnesty will be upheld by default. Additional research would therefore be useful to provide further evidence for any new decisions made in this regard.

These results in relation to anonymity and confidentiality reflect the findings of existing literature in the field of online intervention design, where the provision of both anonymity and confidentiality are seen as components which can make mental health online support interventions more acceptable, empowering, accessible, and safe (Musiat, Goldstone and Tarrier 2014, O'Leary et al. 2017). The evidence presented in chapter two's critical literature review has also provided new evidence to strengthen the case for prompting users automatically to seek help, identifying and following up those at risk, 24/7 access, effective moderation of user content, a web-based peer-to-peer discussion chat room and the inclusion of information designed to inform midwives where they can access alternative help and support. This critical review can be described as strong, because it is original and analytical in exploring an under-researched area (Jesson and Lacey 2006).

Systematic literature reviews are rule-driven and rigorous. As such, the evidence presented for this case via chapter three can be described as 'gold standard' (Bölte 2015). In this way, chapter three has provided evidence to strengthen the case for the inclusion of a mindfulness component within the proposed intervention (Foureur et al. 2013, van et al. 2015, Warriner, Hunter and Dymond 2016). This evidence conforms to what would be predicted on the basis of the processes described within the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). This is because the mechanisms which underpin MBSR, and lead to positive outcomes include cognitive change, insight, acceptance, compassion, attention regulation, self-regulation and self-awareness (Gu et al. 2015). As in Goh and colleague's model, these mechanisms encourage a fluid process of self-appraisal and coping in order to mediate the negative outcomes in relation to stress (Goh, Sawang and Oei 2010).

Within the first Delphi study about an online intervention to support midwives in work-related psychological distress presented within chapter four, 39 questions were posed over two rounds, 18 statements (46%) achieved consensus, 21 (54%) did not. Consequently, this research has been able to show 18 new priorities for the

development of an online intervention to support midwives in work-related psychological distress. Generally, these areas of expert consensus strengthen the case for the development of the majority of the delivery options, features, functionalities and components presented in table 9. Some of these include the provision of 24/7 access, CBT tutorials and informative multimedia components.

In some areas where consensus was not achieved, for example, in relation to amnesty, further research will be required to inform future decision making. However, for other items which did not achieve consensus, such as the sharing of experiences for the purpose of help-seeking, there is alternative evidence to show that these components may still be useful to some online users seeking psychological support (Musiat, Goldstone and Tarrier 2014, Naslund et al. 2016). Therefore, in some circumstances, future research can look to alternative evidence and theory to make forthcoming decisions in this regard. As the Delphi study presented has engaged a varied participant group, offering a range of relevant and diverse expertise, the expert consensus presented here as evidence can be described as a 'fundamental underpinning of science' (Jorm 2015).

A case for the development of an online intervention to support midwives in work-related psychological distress has been made by presenting new evidence incrementally throughout each chapter, culminating in the evidence-based delivery options, features, functionalities and components proposed in table 9. However, it is important to outline how each of these pieces of research make an original contribution to knowledge, and collectively meet the standards required of doctoral research.

Contribution to knowledge and originality statement

In line with Wellington's (2013) framework for assessing 'Doctorateness', this research can be considered to be an 'original contribution to knowledge' as it builds new knowledge by extending previous work on managing and preventing psychological distress in health professionals. Previously, reviews of research in this area had not encompassed either midwives or student midwives as a single sample group (Guillaumie, Boiral and Champagne 2016, Murray, Murray and Donnelly 2016, Regehr et al. 2014, Romppanen and Häggman-Laitila 2016, Ruotsalainen et al. 2015). Additionally, previous intervention research has not specifically targeted interventions

either toward qualified midwives or student midwives (Foureur et al. 2013, McDonald et al. 2012, McDonald et al. 2013, Wallbank 2010, Warriner, Hunter and Dymond 2016). In contrast to this, midwives and student midwives have remained the target population under study, making this thesis original throughout.

Within Wellington's (2013) framework for assessing 'Doctorateness', there are seven categories listed for which doctorates may contribute original knowledge. Therefore, in order for 'Doctorateness' to be unequivocally established for this thesis, it is important to apply the categories of this framework to each component of research. This process of application is outlined in table 10.

Table 10: Applying 'Doctorateness' to original knowledge

Category description	**Evidence**
Building new knowledge, e.g. by extending previous work or 'putting a new brick in the wall'.	The Delphi method has been used previously to assess the workplace needs of midwifery populations (Hauck, Bayes and Robertson 2012). Yet the views and opinions of an expert panel about the design and development of an online intervention designed to support midwives in work-related psychological distress have been gathered and presented for the first time within this thesis.
Using original processes or approaches, e.g. applying new methods or techniques to an existing area of study.	As the Delphi study presented within this thesis was a modified one, where the identity of experts remained unknown to the researcher, and free text response options accompanied each statement, it has also applied somewhat original processes and approaches to an existing area of study.
Creating new syntheses, e.g. connecting previous studies or linking existing theories or previous thinkers.	Chapter one presents the first narrative review to integrate studies of midwives in work-related psychological distress (Pezaro et al. 2015). This original knowledge demonstrates how midwives working in rural, poorly resourced areas who experience neonatal and maternal death more frequently can experience death anxieties, where midwives working in urban and well-resourced areas do not. This creation of new syntheses connects previous studies and existing theories together to form new knowledge. The mixed-methods systematic review presented within chapter three is the first of its kind to collate and present the current and available evidence in relation to existing interventions targeted to support midwives in work-related psychological distress (Pezaro, Clyne and Fulton 2017).
Exploring new implications, for either practitioners, policy makers, or theory and theorists.	Chapter two makes an original contribution to ethical decision making, and may be extrapolated and applied to other healthcare professions who may also now consider the provision of confidential support online.
Revisiting a recurrent issue or debate, e.g. by offering new evidence, new thinking, or new theory.	The original research presented in chapter two contributes to an ongoing academic dialogue in relation to ethical decision making.
Replicating or reproducing earlier work, e.g. from a different place or time, or with a different sample.	The mixed-methods systematic review, presented in chapter three somewhat replicates earlier work from a different place, time, and with a different inclusion sample (Shaw, Downe and Kingdon 2015).
Presenting research in a novel way, e.g. new ways of writing, presenting, disseminating.	The results of this research have been disseminated via popular media publications throughout. A further summary of this research is planned for publication. Furthermore, this research has also informed new guidance, published by the Royal College of Midwives, who also present the results of this research in a new way. This new guidance is intended to guide heads of midwifery to support midwives experiencing work-related stress. Evidence of this can be found in Appendix 15.

Generally, the research community communicates and continues to build original contributions to knowledge via publications in peer reviewed journals and conferences. A thesis being worthy of publication either in full or abridged form can establish it to be bonafide doctoral work (Wellington 2013). This statement is also echoed by regulations and guidelines for internal and external doctoral examiners (Jackson and Tinkler 2007, Tinkler and Jackson 2004). This is significant because the majority of this research, and a methodological protocol has been published elsewhere, contributing new knowledge to both the academic and healthcare communities (Pezaro et al. 2015, Pezaro and Clyne 2015, Pezaro and Clyne 2016, Pezaro, Clyne and Fulton 2017, Pezaro, Clyne and Gerada 2016). Therefore, these publications in peer-reviewed journals provide further evidence of how this thesis can be classified as bonafide doctoral work, demonstrating significance, originality and new contributions to knowledge in this regard. These papers can be accessed in appendices 1, 16, 17, 18, 19. Two summary papers have also been published within the royal college of midwives' Journal and the Nursing Times. These papers can be found in appendix 20 and 21 respectively.

Applying theory and a framework to this research

This research has been underpinned by the revised transactional model of occupational stress and coping presented by Goh and colleagues (Goh, Sawang and Oei 2010). This model outlines the fluid process of cognitive appraisal, coping and outcomes relating to those experiencing work-related stress. In the context of this thesis, the term 'appraisal' has related to how an individual assesses the degree of any risk or threat to their own wellbeing. The concept of coping in this context has been related to a variety of reactive behaviours following cognitive appraisal, which reflect a particular emotion resulting from an episode of work-related psychological distress. Outcomes in the context of this thesis have referred to the experience and consequences of work-related psychological distress. This thesis has also been underpinned by the MRC framework for developing and evaluating complex interventions (Craig et al. 2008).

The reasons for choosing a stress-specific theory for this research were partly due to the findings of a literature review performed by Ryan and colleagues, where interventions based upon a stress-specific theory were deemed to be effective (Ryan

et al. 2017). However, it is important to note that many other studies presented within this review which were either atheoretical, or based upon alternative theories also produced positive outcomes for their participants. As such, it is not wholly clear whether or not theory-driven interventions produce more favourable outcomes than atheoretical ones. Nevertheless, applying a process orientated theory to this research has meant that a better understanding of stress has been able to guide this research throughout (Lazarus 2006b).

As is common practice, the revised transactional model of occupational stress and coping has been used to apply a 'theoretical lens' to this entire body of research (Goh, Sawang and Oei 2010, Stewart and Klein 2015). The value of using such an approach means that in the longer term, future research will be able to better assess why this intervention is effective or not, as well as how effective it is (Craig et al. 2008). As with a majority of other intervention research, this thesis has similarly used theory to inform the choice and design of its proposed intervention (Davies, Walker and Grimshaw 2010). Some of the components presented within table 9 have evolved from components which have already been incorporated in other online interventions, rooted within transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). Others relate to the three types of components situated within the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010).

The preliminary components of the revised transactional model of occupational stress and coping relate to the individual's 'appraisal' of a potentially stressful event (Goh, Sawang and Oei 2010). In relation to the goals of the elements essential to the intervention, it is the identification and management of work-related psychological distress which will engage the 'appraisal' component of this model. Here, components such as the inclusion of web-based videos, multimedia resources, and tutorials which explore topics around psychological distress will encourage midwives to appraise their own knowledge and experiences to increase their own understandings in this regard. Equally, multimedia resources designed to assist midwives to recognise the signs and symptoms of psychological distress will facilitate the self-appraisal of potentially stressful experiences.

Yet within both of these multimedia components, midwives will also be invited to appraise and explore any potential outcomes relating to work-related psychological distress in both themselves and others in the workplace. Therefore, the 'outcomes' component of the revised transactional model of occupational stress and coping also becomes engaged (Goh, Sawang and Oei 2010). In educating midwives about work-related psychological distress, it is anticipated that midwives may also be able to identify which types of coping strategies currently relate to their own encounters with work-related psychological distress. Thus the 'coping' component of the revised transactional model of occupational stress and coping will also be engaged through these particular components of the proposed intervention (Goh, Sawang and Oei 2010).

The inclusion of multimedia resources which disseminate self-care techniques, relaxation techniques, CBT techniques and mindfulness tutorials will introduce midwives to coping strategies designed to effectively manage work-related psychological distress. As well as the 'coping' component of Goh and colleague's model informing the development of these intervention components, the taught coping strategies may also require midwives to self-appraise their own thoughts and experiences in relation to work-related psychological distress (Goh, Sawang and Oei 2010). Not only do these coping strategies engage the 'appraisal' component of the revised transactional model of occupational stress and coping, they also engage the 'outcomes' component, as midwives may appraise their own 'outcomes' or levels of stress at the same time (Goh, Sawang and Oei 2010). Such components also support the goals of the elements essential to the intervention, as they aim to reduce work-related psychological distress, and enable midwives to more effectively cope following episodes of work-related psychological distress.

As midwives using the proposed intervention are presented with information designed to advise them where they can access alternative help and support, they will not only be self-appraising whether or not they are ready to seek and access alternative help and support, they will also be adopting new coping strategies should they choose to engage with the support on offer. Thus, in this case, both the 'coping' and 'appraisal' components of the revised transactional model of occupational stress and coping reflect the fluid process of stress and coping (Goh, Sawang and Oei 2010). Similarly, the

inclusion of information designed to inform midwives as to where they can access legal help and advice will engage these same components as midwives assess whether or not they are personally in need of legal help and advice, and if so, whether or not they may access the support put forward to them. Prompting platform users automatically to seek help, by signposting them to appropriate support may further facilitate this process.

Whilst the same fluid process of stress and coping may be reflected in how users engage with a web-based peer-to-peer discussion chat room (or not), midwives in this case may also appraise and share outcomes and coping strategies related to work-related psychological distress in partnership with other users. Thus, all three types of components within the revised transactional model of occupational stress and coping again reflect the proposed intervention's component in this instance (Goh, Sawang and Oei 2010). The self-management exercises, decision aids, self-monitoring, wellbeing and gratitude diaries, goal setting, problem-solving and effective time management along with positive psychology exercises proposed for inclusion have also been incorporated into other online interventions, rooted within the transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Stansfeld et al. 2015, Williams et al. 2010). Yet all of these components involve the process of self-appraisal, the development of effective coping strategies and the management of stress outcomes. This is because, whilst using these components, midwives will be invited to self-appraise their own thoughts, feelings and experiences in relation to work-related psychological distress, and then use these appraisals to develop improved outcomes, effective decision making and new coping strategies.

The provision of confidentiality and anonymity in an online intervention designed to support midwives in work-related psychological distress may also enable midwives to conduct self-appraisals, as they may feel more at ease with the process of help seeking in this context. In turn, this may enable midwives to engage with effective coping strategies as they seek help where they may not have otherwise done so. This process relates to the 'appraisal' and 'coping' components of Goh and colleague's model, as the midwives will be able to self-appraise in private whilst seeking support or 'coping' (Goh, Sawang and Oei 2010). Equally, the provision of both proactive and reactive moderation in an online environment may enable users to engage in self-appraisal, as

other users observe and react to inappropriate online behaviours in this context. In this same sense, effective coping strategies may also be adopted by users as they are shared and suggested by the moderated user responses.

In order for users to adopt effective coping strategies more flexibly, the provision of 24/7 online access and mobile device compatibility is evidence-based within this research. Consequently, these functionalities fall in line with the 'coping' component of the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). The implementation of an initial simple user assessment using a psychological distress scale to prompt the user to access the most suitable support available will also enable users to access effective coping strategies more readily. Additionally, this would enable users to appraise their own outcomes and experiences in relation to work-related psychological distress, thus engaging all three types of components situated within the revised transactional model of occupational stress and coping (Goh, Sawang and Oei 2010). Yet the follow up and identification of those at risk may be required where users are unable to engage with effective coping strategies. In such cases, outcomes which indicate that a user may be at risk would be appraised by both the users and the moderators of the proposed intervention throughout this particular process of stress and coping.

The proposed online intervention will be individual-focused, in line with other online interventions, rooted within the transactional models of stress (Ebert et al. 2015, Ebert et al. 2016a, Ebert et al. 2016b, Heber et al. 2016, Williams et al. 2010). The fact that this intervention is also delivered online may enable midwives to engage with the revised transactional model of occupational stress and coping's process of coping more flexibly (Goh, Sawang and Oei 2010). Additionally, the variety of components delivered within the proposed 'one stop shop' may also enable midwives to engage with all three types of the revised transactional model of occupational stress and coping's components in one place (Goh, Sawang and Oei 2010).

As outlined throughout this research, the proposed intervention for which this thesis has made a case for is both theory-based and evidence-based. Such approaches have proven to be effective, as they provide an inclusive and generalisable analysis of the theoretically relevant constructs and behaviour change techniques involved in intervention development (Kok et al. 2004). Overall, in presenting some of the

relationships between cognitive appraisal, stress outcomes and coping, the revised transactional model of occupational stress and coping has been able to provide structure to this research (Goh, Sawang and Oei 2010). This is because this model has enabled the researcher to link the problem of midwives in work-related psychological distress and the direction and conclusions of this research with the transactional processes of appraisal, stress and coping for a broader understanding of the issues raised within this thesis (Goh, Sawang and Oei 2010, Wolf 2015).

This use of explicit theory has been suggested by one systematic review to help researchers understand barriers, mediating pathways and moderators in design interventions (Davies, Walker and Grimshaw 2010). The application of the revised transactional model of occupational stress and coping has been helpful and useful for this research in informing the choice and design of the intervention proposed within this thesis, understanding the processes involved in the development of work-related psychological distress and in justifying research decisions (Goh, Sawang and Oei 2010). However, it is the 'appraisal' and 'coping' components of this model which have been most useful. As this research moves towards feasibility and pilot testing in line with the next phase of the MRC framework for developing and evaluating complex interventions (Craig et al. 2008), greater use of the 'outcomes' component of this theory is anticipated.

In this case, the MRC framework for developing and evaluating complex interventions was used to guide how the intervention proposed within this thesis may be developed and evaluated (Craig et al. 2008). Currently, this research sits within the primary development phase of this framework. In adhering to this early phase, this research has been better able to define and quantify the problem under study, identify the population most affected or most likely to benefit from the intervention, and understand the pathways by which the problem under study is caused and sustained. This process has been crucial, as the effective design of an intervention depends on understanding the underlying problem, the context, and the processes involved in optimising the intervention (Campbell et al. 2007). Additionally, the MRC framework for developing and evaluating complex interventions has guided the researcher to match the most appropriate research methods with the most appropriate phases of

research, whilst understanding the constraints on design and weighing up the available evidence.

In an overall reflection, the use of the MRC framework for developing and evaluating complex interventions has greatly supported the structure and direction of this research, ensuring that any future work is built upon a solid foundation of scientific evidence. Similarly, the revised transactional model of occupational stress and coping has ensured that there is a theoretical understanding of the likely process of change, how things work and why (Goh, Sawang and Oei 2010). The use of this theory and framework has meant that this research has been able to give a more detailed description of the proposed online intervention. In turn, this will improve the likelihood that this intervention can be delivered faithfully during future evaluation phases, in line with the MRC framework for developing and evaluating complex interventions (Craig et al. 2008). Nevertheless, there are some other limitations and strengths to this research which must be declared.

Strengths and limitations

The strengths and limitations of each individual study have been outlined within the previous chapters of this thesis. However, the broader strengths and limitations of this thesis are discussed next.

Overall, this thesis has reported detailed research findings to address the complex issue of supporting midwives in work-related psychological distress. In order to do this, it has used multiple methods for gathering and analysing data. Whilst Ryan and colleagues (Ryan et al. 2017) have identified where previous research has explored the use of online interventions to support various populations in work related psychological distress, this research offers evidence from a previously unexplored area; midwives in work-related psychological distress.

The need to support health care professionals in the workplace has been established in previous publications (Guillaumie, Boiral and Champagne 2016, Murray, Murray and Donnelly 2016, Regehr et al. 2014, Romppanen and Häggman-Laitila 2016, Ruotsalainen et al. 2015). This thesis not only corroborates this stance, but also explores the mechanisms and processes involved in providing a solution for midwives online.

As chapter one integrated existing research to provide a contemporary and original picture of the problem under study, this chapter was able to guide the direction of subsequent research presented within this thesis (Green, Johnson and Adams 2006). The strong foundation given to this thesis enabled the researcher to then identify gaps in research, such as which types of interventions are available to support midwives in work-related psychological distress, and which type of support may be most effective for this population. However, some of the review methodologies used in this research have been confined to the synthesis of qualitative research only, and therefore any interpretations made may be influenced by the researcher's personal idiosyncrasies and biases (Dixon-Woods et al. 2006).

The critical review presented in this research explores the complex ethical arguments and ideas in relation to supporting midwives confidentially and anonymously online. Whilst this topic was an ambitious one to address in exploring areas of moral uncertainty, the findings of this research have implications for midwifery practice. This is because currently, midwives are required by the NMC to disclose episodes of impairment for the protection of the public. Such disclosures may result in professional sanctions. Yet the conclusions presented within this critical review suggest that episodes of impairment may be disclosed anonymously and confidentially for the purpose of help seeking and therefore, the wider protection of the public. As such, the new arguments, evidence and ideas presented here may influence and contribute to new policies and interventions to support midwives in work-related psychological distress. However, it could also be argued that this review has included too few papers with which to make such a strong argument (Tricco et al. 2016). Ultimately, both midwives and childbearing women may benefit from this research, through the implementation of effective support interventions to address the issues raised throughout this thesis.

Systematic reviews of research are the studies which sit at the top of the hierarchy of evidence (Bigby 2014). Therefore, the correctly executed mixed-methods systematic review presented within chapter three can be considered to use methodology of the highest quality. Additionally, systematic mixed-methods reviews such as the one presented within this thesis are able to combine the power of numbers with the power of stories to provide the best evidence for decision making (Pluye and Hong 2014). On

the basis of this review, decisions in relation to which face-to-face interventions would most effectively translate into the proposed online intervention have been made. Future decisions in relation to providing other forms effective support for midwives in work-related psychological distress may also be guided by this research. Furthermore, the study designs reported within the results of this review will also provide evidence in relation to which future research approaches may be most appropriate for testing the intervention proposed within this thesis. In conducting a systematic mixed-methods review, this thesis has provided the first scientific review of the evidence in relation to the outcomes and experiences of interventions available and designed to support midwives in work-related psychological distress.

Another recent systematic review and meta-analysis has explored the efficacy of mindfulness based interventions to support the psychological wellbeing of healthcare professionals (Burton et al. 2016). In widening the scope of investigation, this study has been able to capture a wider range of data, and therefore conduct a meta-analysis, where the systematic mixed-methods review presented within this thesis has not. However, similar issues remain in that often, studies still produce inconsistencies in follow up data collection and reporting measures. As such, the systematic mixed-methods review presented within this thesis may not necessarily have been enhanced by considering the use of any alternative approach or by widening the scope of its enquiry. However, since this review has been completed, an evaluation of a web-based holistic stress reduction pilot program among nurse-midwives has been published (Wright 2017). This intervention used yoga, meditation, and MBSR techniques on an alternating basis, over a 4-week period to help reduce perceived barriers to self- care activities. Results from this study, which evaluated an existing online intervention rooted within Watson's (1997) theory of human caring showed a potential for an improvement in stress levels and coping abilities after participation.

Whilst the Delphi approach holds no evidence of reliability, and is not a replacement for rigorous scientific literature reviews, it performs well as a means of gaining expert consensus, facilitating group communication and decision making (Keeney, Hasson and McKenna 2001). The strength of this methodology is that it has enabled this research to consult experts on a previously under-researched topic; the development of an online intervention designed to support midwives in work-related psychological

distress. The findings from this process have also enabled this research to make evidence-based decisions about what should be included within an intervention to support midwives in work-related psychological distress. Limitations remain in that should this study be repeated with another group of experts, there would be no guarantee that the same areas of expert consensus would be obtained.

Whilst terms used to describe the mechanisms of online interventions can vary, this thesis has chosen to use the terms 'delivery,' 'features', 'functionalities' and 'components', as they are used in the Consolidated Standards of Reporting Trials of Electronic and Mobile HEalth Applications and onLine TeleHealth (CONSORT-EHEALTH) throughout (Eysenbach and Consort-EHEALTH Group 2011). Yet for greater consistency, these terms could have also been incorporated within the information given to participants. Going forward, the consistent use of this terminology will be vital in describing this online intervention more dependably and comprehensively as it develops.

Ultimately, this thesis is a demonstrably coherent body of research as it has addressed what it set out to address, uses appropriate research methods, and links research questions, literature, findings and interpretations together logically to create new knowledge (Bryman 2015). Yet it must be noted that the research questions and arguments formulated within this thesis may be underlain with ideological and theoretical assumptions, and may have been influenced by some of the ontological and epistemological positions taken by the researcher. Therefore, it is also important to report upon a researcher's reflexivity and reflective processes as they have developed throughout the undertaking of this research.

Reflexivity

Philosophical, epistemological and ontological principles can guide a researcher's methodological approach (Darawsheh 2014). Data analysis can also depend on a researcher's individual intuition, creativity and imagination in reading data and reaching conclusions (Creswell 2012). As such, it is entirely possible that the conclusions I have drawn from the data collected within this research may have been influenced by my own philosophical, epistemological and ontological assumptions. The methodological approaches that this research has taken may also have been influenced by these assumptions, yet it has only been through retrospective reflection

that I have been able to make these connections, and make plans to adapt my own future research practices accordingly. This current research is rooted within the positivist paradigm (Gartrell and Gartrell 2002), yet I also now have a growing appreciation for constructivism (Glasersfeld 1996), interpretivism and interpretive research paradigms (Lin 1998).

Maintaining transparency in research clarifies the philosophical position of a researcher in relation to the research process, and provides rigor in research (Finlay and Ballinger 2006). In order to mitigate the influence of researcher bias for this research, I have maintained a reflective blog throughout, which has in turn continuously challenged my pre-existing assumptions and hypotheses. I partnered this activity with reflective peer group discussions, where I persistently questioned my motives for taking this research in particular directions. Furthermore, I repeatedly reflected upon how my interpretations matched the actual data collected. This was done in order to avoid favouring any preconceived position I may have in relation to the arguments I have presented.

In order to situate myself as the researcher in this work, I have reflected on many aspects of my identity, including my cultural background, thoughts, actions, emotions and assumptions, and how these factors may influence the research process and interpretation of findings. In order to provide transparency in this research, there are several of my personal characteristics and interpersonal relationships which must be declared. These have been acknowledged in table 11, in accordance with the primary reflexivity domain hosted within the consolidated criteria for reporting qualitative research (Tong, Sainsbury and Craig 2007).

Table 11: Personal characteristics and interpersonal relationships

Domain 1: Research team and reflexivity	
Personal Characteristics	
Interviewer/facilitator	I personally facilitated the Delphi study; rounds one and two.
Credentials	I am a registered midwife I am a Deputy Mayor (Town Councillor) Qualifications: Diploma in Midwifery MSc in Leadership for health and social care BA (Hons) in Communications and media with popular culture
Occupation	Midwife and PhD Student
Gender	Female
Experience and training	-Inexperienced with little training in qualitative methods -Personal experience of work-related psychological distress whilst working as a clinical midwife
Relationship with participants	
Relationship established	Some participants to the Delphi study had a prior relationship with me. These relationships in some cases were both personal and professional.
Participant knowledge of the interviewer	Participants were aware that the goal of the research was to subsequently design and develop an online intervention designed to support the midwifery workforce in work-related psychological distress.
Interviewer characteristics	Participants were aware of my reasons for and interests in the research topic. This information was provided in participant information, and via my reflective research blog.

As a midwife with personal experience of work-related psychological distress, I had to recognise that I may have underlying preferences for certain outcomes, applications and interpretations for this research. Reflexivity is a tool that has enabled me to evaluate my judgements, bias and performance within this research. Table 12 summarises some of the principle outcomes produced through the use of reflexivity in this research.

Table 12: Principle outcomes of employing reflexivity in the research process

Context of reflexivity	Reflection	Methods used to inject rigour into this research	Outcomes
Prior reading around the topic of psychological distress in midwifery populations made it more challenging to look at any new literature retrieved objectively.	I may need to recognise any influences of prior work, and appraise their effect logically and openly.	Supervisors to this research were frequently invited to review data analysis, and any new interpretations drawn from the literature.	Future actions could include memo writing to acknowledge and report on the potential for any prejudice in real time.
Whilst my own creativity has played an integral part in the emergence of themes and categories within the analysis of data collected, some of these may have been shaped by my preconceived notions of how participants may experience the world.	I may need to derive new ideas, categories and themes inductively, and then test them deductively.	Supervisors to this research reviewed the emergence of themes throughout data analysis. Conclusions were drawn following peer review. Supervisors to this research also contributed to the shaping of the questions presented within the chapter four Delphi study.	Future actions could include paused reflection when creating categories or themes within the data, to limit the effect of personal influence. However, it will be important not to be so reflexive as to stifle creativity, and thus provide description only.
As data emerged which challenged the emerging theory that some interventions could be effective in supporting midwives, I found it challenging to accept opposition to my own epistemological assumptions.	It is necessary to be open to alternative explanations when negative cases challenge an emerging theory.	Negative case analysis was employed throughout this research. Here, close attention was paid to elements of the data which did not support or appeared to contradict emerging patterns. This ensured that any conclusions drawn could account for the majority of cases.	Future actions could include the development a self-aware, and self-questioning approach to research. In future, I will prepare to more easily allow prejudices to be eliminated by data that oppose them.

This reflective discussion on the subjectivity and reflexivity of the researcher has been employed to raise the rigour of this research (Darawsheh 2014). Employing reflexivity in this research has helped me to understand myself both personally and professionally, by identifying aspects of my decision-making processes that have influenced this work in either a positive or negative way. I have also been able to deeply reflect upon some of the complex ethical issues associated with my profession. In future, identifying personal traits that may subjectively influence future research findings and processes will help me to use my subjectivity to achieve my ultimate goal, which is to fully explore and understand participant accounts, new theories and

phenomena. Ultimately, reflexivity in research is not a single or universal entity but an active, ongoing process that will continue to saturate my future research work.

Areas for future research

The answer to the overall research enquiry is 'yes', this thesis has a case for an online intervention designed to support midwives in work-related psychological distress. However, some more specific research is required in relation to how the intervention proposed may be accepted and engaged with by midwives. Future research in developing the online intervention proposed in this thesis should also include involving users and key stakeholders at every stage, as this is likely to result in 'better, more relevant science and a higher chance of producing implementable data' (Craig et al. 2008). Such involvement from these groups may also facilitate future decision making in relation to how the components of the proposed intervention are more specifically sourced, designed and delivered.

Equally, the use of mixed methods approaches will be of value when exploring any future counter-intuitive findings, as these approaches can provide far richer insights than any one single method of inquiry (Bradbury et al. 2015). Having established a case for the development of an online intervention designed to support midwives, the next research steps in developing the intervention will now be explored.

On the basis of the evidence presented in this thesis, the next step in research is to build and trial an intervention which includes the features, functionalities and components described in table 9. This next step in research also falls in line with the next phase of the MRC framework for developing complex interventions (Craig et al. 2008). Crucially, evaluations of interventions are often undermined by problems relating to the components of research design, which could have been addressed through feasibility and pilot testing (Prescott et al. 1999). Thus importantly, this next phase will include the design of testing procedures; estimation of recruitment and retention needs and the determination of adequate sample sizes (Craig et al. 2008).

The content which will complete the components of this online intervention may be well informed by examining what midwives are most likely to accept and use. Additionally, as findings in relation to the provision of confidentiality, anonymity and amnesty point to conflicting conclusions, questions in relation to this area of research

remain. Future research in this regard could usefully examine episodes of professional impairment and whether or not and how these link to the consequences of work-related psychological distress in midwifery populations. This examination may be done by conducting a content analysis of the episodes of impairment published within NMC case hearings and outcomes proceedings. In examining such episodes, developers of online interventions which permit confidentiality and anonymity for midwives seeking support may be better able to make informed decisions in relation to which forms of impairment an intervention of this type may permitting amnesty for.

Finally, whilst one of the objectives for the proposed intervention would be to trial effectiveness via an adequately powered RCT, it is not yet established whether such a study can be conducted. Therefore, this intervention will initially require feasibility and pilot testing. In order to progressively refine the most appropriate design of a full-scale evaluation, the MRC framework for developing complex interventions suggests that a series of studies may be needed (Craig et al. 2008). As such, the proposed initial three research questions to follow this thesis are:

1) a) What types of episodes of impairment currently occur most frequently in the midwifery profession? and b) do these episodes have any links to the consequences of work-related psychological distress, and if so, how?

2) How do potential users experience and engage with the content of an online intervention designed to support midwives in work-related psychological distress?

3) What are the experiences and outcomes associated with the use of an online intervention designed to support midwives in work-related psychological distress?

The purpose of the online intervention proposed within this thesis is to support individual midwives to manage, prevent, self-appraise and cope with the negative effects of work-related psychological distress in line with the revised transactional

model of occupational stress and coping (Goh, Sawang and Oei 2010). The 'outcomes' component of the revised transactional model of occupational stress and coping generally leaves the nature of stress outcomes open to the appraisal process (Goh, Sawang and Oei 2010). However, references to depression, anxiety and stress are made. As such, it is a reduction in these three outcomes which would be anticipated for this intervention. Additionally, the broader primary goal of this intervention is to improve midwives' professional quality of life through the identification and effective management of work related psychological distress. Therefore, the primary outcomes anticipated for this intervention would also be to observe improvements in a midwife's quality of professional life, and a reduction in the measure of stressors experienced.

Following the practical development of a working prototype, the identification of appropriate outcome measures will be required in order to evaluate the effectiveness of this intervention's features, functionalities and components as listed in table 9. Future process research in this area may also support the examination of how changes in the outcome itself may occur, which processes link to certain outcomes, and which types of events are considered to be most helpful during the process of change (Llewelyn and Hardy 2001). Yet initially, and in line with the other studies of interventions designed to support midwives identified within the systematic mixed methods review presented, this research could utilise the IES, ProQol and the DASS scales (Foureur et al. 2013, McDonald et al. 2012, McDonald et al. 2013, van et al. 2015, Wallbank 2010, Warriner, Hunter and Dymond 2016). Such tools would measure the anticipated and primary outcomes of the proposed intervention, described above as depression, anxiety, stress, professional quality of life and the impact of stressful events experienced.

Conclusion

Via a narrative literature review integrated into chapter one, a critical literature review, a mixed-methods systematic review and a 2-round Delphi study, this thesis has presented a case for the development of an online intervention designed to support midwives in work-related psychological distress. However, the strength of this case must be balanced against the strengths and limitations of this research, and the weight of evidence in answering the research questions as presented.

The phenomenon of online support for midwives in work-related psychological distress is an area in need of further research. This thesis integrates new evidence in favour of the development of an online intervention designed to support midwives in work-related psychological distress and has recognised the potential usefulness of this intervention in practice. Midwives are entitled to reduced psychological distress in the workplace, and both women and their babies deserve excellence in maternity care. The next challenge will be to turn this vision into practice.

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